

TN  
27  
N8A2  
1913  
Engineering

**PROVINCE OF NOVA SCOTIA**

**REPORT OF THE  
DEPARTMENT OF  
MINES  
1913**



Printed by Order of the Legislature

MAR 30 1914

UNIVERSITY OF TORONTO

HALIFAX, N. S.

COMMISSIONER PUBLIC WORKS AND MINES

KING'S PRINTER

1913

THE WEEKS PRINTING CO., LTD., HALIFAX, N. S.



Digitized by the Internet Archive  
in 2011 with funding from  
University of Toronto





PROVINCE OF NOVA SCOTIA

Report of the  
Department of Mines  
1913



HALIFAX, N. S.  
COMMISSIONER PUBLIC WORKS AND MINES  
KING'S PRINTER  
1914



# CONTENTS

---

	PAGE
Mineral Production.....	12
Revenue .....	13
Comparative Statement .....	14
Deputy Inspector's Report—Cape Breton, Southern District..	17
Cape Breton, Northern District.	33
Pictou District .....	70
Cumberland District .....	96
Inverness.....	118
Special Reports—Fire, Intercolonial Mine .....	121
Fire, Albion Mine.....	126
Report of Commission, Fire Intercolonial Mine .....	134
Fire, Springhill Mine .....	136
Accidents .....	139
Metalliferous Mines .....	150
Antimony, Tin, Tungsten, etc .....	152
Gold .....	153
Quarries .....	170
Government Core-Drills.....	180
Successful Candidates, Mining Examinations .....	209
Machinery at Coal Mines.....	213

## TABLES

---

COAL—General Statement.....	II
Sales by Counties .....	III
Production by Counties 1908 to 1913.....	IV
Production and Sales (Companies) .....	V
Labor employed.....	VI
Sales to United States . . . . .	VII
Nova Scotia Sales 1785 to 1912 (inclusive).	VIII
General Statement .....	IX
GOLD—Production, 1862 to 1913, (inclusive) .....	X
General Statement .....	XI
Monthly Statement.....	XII to XVI

## ILLUSTRATIONS

---

	PAGE
Men Employed Nova Scotia Mines .....	16
Production of Coal, 1888-1913 .....	16
Output Tons per man per year.....	16
Caribou—Surface Equipment, Flat Lead and Holman Shaft, Caribou Gold Mines .....	154
Tangier—Kent Lead face of 500 feet Level East.....	160
Transformer House, Goldenville Mining Co.....	161
Power House, Stormont Mining Co.....	166
Mill Building under Construction, Stormont Mining Co.....	166





# Department of Mines

---

REPORT FOR THE YEAR ENDED SEPT. 30th, 1913

---

TO HIS HONOUR THE HON. JAMES D. MCGREGOR,  
*Lieutenant-Governor of Nova Scotia:—*

MAY IT PLEASE YOUR HONOUR,—

I respectfully present herewith to Your Honour, the Annual Report of the Inspector of Mines, containing an account of the progress of mining operations, together with statistical information compiled by him from official and other returns.

I have the honour to be,

Your Honour's obedient servant,

ERNEST H. ARMSTRONG,  
*Commissioner of Public Works and Mines.*

Halifax, December 30th, 1913.



# REPORT

## ON THE

# MINES OF NOVA SCOTIA

BY HIRAM DONKIN, C. E., *Inspector of Mines.*

---

HALIFAX, N. S., December 31st, 1913.

*To the Honourable Ernest H. Armstrong, K. C., M. P. P.,  
Commissioner of Public Works and Mines.*

SIR:—

I have the honour to submit herewith, report on the mines and quarries of Nova Scotia for the fiscal year ended September 30th, 1913.

The following summary shows, so far as information could be obtained, the mineral production of Nova Scotia, for the years ended September 30th, 1912 and 1913.

The demand for departmental drills and the amount of drilling done have been less than last year.

*Nova Scotia Mineral Production,**Year ended September 30th, 1913.*

MINERALS.	1912.	1913.
Coal raised, long tons .....	6,802,997	7,203,913 $\frac{1}{4}$
Pig iron, short tons.....	411,388	486,962
Steel ingots, " " .....	461,392	483,600
Limestone, " " .....	473,067	547,004
Coke, " " .....	603,372	728,037
Gypsum, " " .....	280,000	271,609
Building-stones, " " .....	11,664	13,186
Bricks, number .....	22,348,486	19,658,988
Drain-pipe and tile, feet.....	987,922	1,276,159
Grindstones, short tons.....	400	140
Gold-bearing ore, " " .....	15,868	7,324
Gold, ounces .....	4,948	2,365
Manganese ore, short tons.....	233	.....
Moulding-sand .....	1,190	180
Tungsten Concentrate, short tons.....	14	10
Sulphate of Ammonia, gross tons.....	5,213	.....
Briquettes, gross tons.....	.....	30,485
Barytes .....	974	700

Iron ore imported in 1912—880,904 net tons.

Iron ore imported in 1913—911,168 net tons.

## MINES OFFICE.

*Statement of Revenue for Fiscal Year ended September 30th 1913.*

SOURCE.	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Prospecting license applications.....	483.50	249.00	634.50	1,603.50	2,970.50
Lease applications (gold and silver).....	229.00	34.00	226.00	436.00	925.00
Rentals (gold and silver).....	.....	.....	1,127.00	9,494.00	10,621.00
License to search applications.....	1,890.00	1,560.00	1,320.00	2,670.00	7,440.00
Lease applications (other than gold and silver)...	250.00	350.00	450.00	400.00	1,450.00
Rentals (other than gold and silver).....	.....	.....	13,080.00	15,810.00	28,890.00
Gold royalty .....	171.10	6.38	118.44	153.45	449.37
Coal royalty .....	224,544.38	181,536.44	148,774.20	244,345.30	700,200.50
Fees.....	62.50	504.27	337.05	103.85	1,007.67
	\$227,630.48	184,240.00	166,067.28	275,010.10	852,954.04

## COAL TRADE.

The returns of coal sold during the year 1913 show, compared with the returns for 1912 as follows:—

	1912.	1913.
Nova Scotia .....	2,295,363	2,599,043½
New Brunswick .....	653,938¾	646,642
Newfoundland .....	200,642	210,544½
Prince Edward Island.....	92,302¼	96,082½
Quebec .....	2,159,005	2,193,228¼
Ontario .....	....	29
United States .....	412,351	468,090¾
St. Pierre .....	9,406¼	6,650½
Other countries .....	91,825	2,830
Bunker .....	236,733¾	234,177
Time chartered boats .....	25,867½	21,391½
	<hr/> 6,177,615	<hr/> 6,478,709½

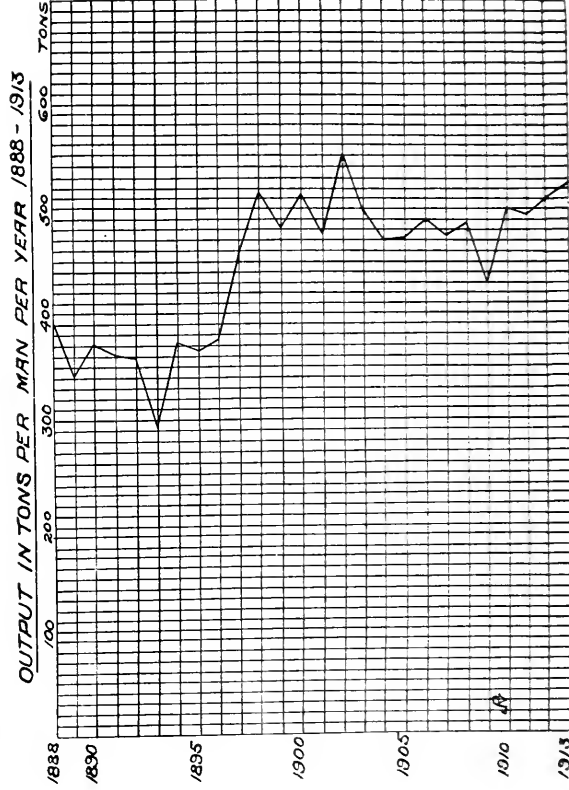
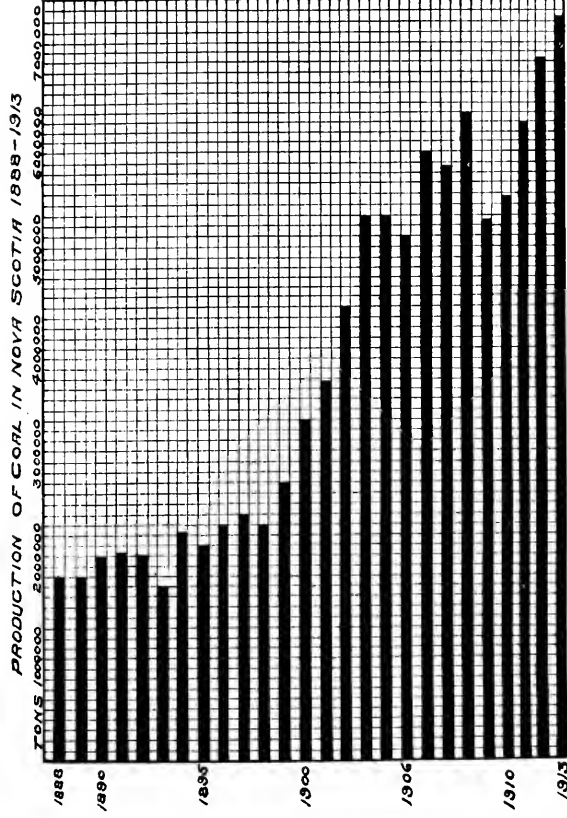
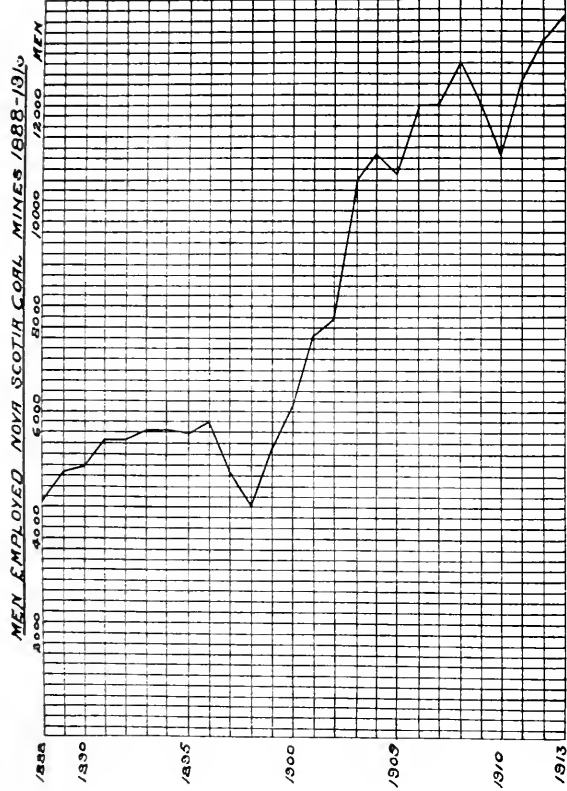
The increase in sales of Nova Scotia coal to Nova Scotia in the decade ended September 30th, 1913, has been 86 per cent., to New Brunswick 56 per cent., to P. E. Island 20 per cent., to Newfoundland 66 per cent., and to Quebec 27 per cent., as is shown by the tables (pages ii. to viii.) The coal produced in the County of Cape Breton for the fiscal year 1913 was 5,594,192 tons, compared with 5,197,601 tons in 1912. Pictou County produced 703,583 tons for 1913, compared with 682,883 tons for 1912. Cumberland County produced 621,864 tons for 1913, compared with 632,809, and Inverness County produced 284,274¼ tons for 1913, compared with 289,704¼ for 1912.











## REPORTS OF DEPUTY INSPECTORS.

### REPORT OF JOHN J. MCNEIL, *Deputy Inspector.*

I beg leave to submit my report on the coal mines, in the southern district of Cape Breton county, for the fiscal year ended September 30th, 1913.

I am pleased to report an increased production from the following collieries:—

No. 2 colliery.....	14,863 tons
“ 7 “ .....	18,131 “
“ 10 “ .....	2,540 “
“ 21 “ .....	114,516 “
“ 22 “ .....	33,838 “

No. 2 colliery had an average of six men more on the weekly force than last year; No. 7 colliery, 38 more; No. 10 colliery had 58 men less; No. 21 colliery had 92 men more; No. 22 colliery had 29 men more. The following collieries had a decreased production:

No. 3 colliery.....	5,518 tons
“ 4 “ .....	25,361 “
“ 5 “ .....	46,395 “
“ 6 “ .....	9,939 “
“ 8 “ .....	71,174 “
“ 9 “ .....	26,299 “

No. 3 colliery had 38 men less on the weekly force than last year, the rooms and the narrow work being finished. The output had to be got from pillars only. No. 4 colliery had 58 men less. The extraction of pillars in the west deep section had to be stopped, on account of the subsidence reaching the surface, and damaging properties. This lessened the number of places where coal was gotten from, and was the cause of the decreased output. No. 5 mine had 57 men less on the average weekly force. The only coal available in the mine is the coal in pillars. The decreased output in No. 8 was caused by a large number of working places being finished last year, and sufficient working places were not available to maintain last year's output. No. 9 mine was short 24 men of the average weekly force. This was the cause of the decrease in the output of this colliery.

## CAPE BRETON COAL, IRON AND RAILWAY CO. (BROUGHTON.)

This mine was closed down in May, 1907; operations were recommenced in April, 1913, and up to date No. 3 main deep has been driven 210 feet. Back-deep east has been driven 400 feet. Back-deep west 230 feet.

Preparations have also been made for a new travelling road, and workings are started in connection therewith.

Additions to surface arrangements:—Tracks are completed between slopes and new bank-head. Also new scale and scale-house erected. Foundations have been laid for new shops, lamp cabin, and mine manager's office.

One new pump, 12x5x13 inches, has been placed in mine. This mine has been equipped with safety lamps. A new fan has been erected and is ready to use when needed. This fan was reported in 1906.

A line of railway is under construction to Mira Bay, a distance of three miles from the point already connected to the Sydney & Louisburg Railway.

A complete water-system is under construction from Loon Lake to the mine.

*Officers*:—General Manager, C. J. Coll; Superintendent, Everet Park; Mine Manager, William Arthrell; Mechanical Foreman, James McDonald.

## DOMINION NO. 2. COLLIERY.

*Improvements.*

Extended haulage No. 1 north deep 200 feet and made new landing 500 feet, at top of deep; relaid haulage with 30 pound rails 2300 feet.

Installed new haulage on No. 2 north deep and laid landings at top and bottom 2900 feet with 30 pound rails.

Extended haulage in south deep with 30 pound rails a distance of 1000 feet.

Built two new overcasts for south deep split, and put in 10 concrete stoppings along south level airway.

*Machinery added.*

12 x 18 engine erected on No. 1 north deep: 4000 feet of  $\frac{3}{4}$  inch rope put on this engine: 8x12 engine replaced by one 9 x 12 on Allen's headway: 8 x 12 engine erected in No. 1 north



deep: 9 x 12 engine repaired and installed on Sheppard's deep. Erected a pair of 6 x 8 engines for hauling cars under the screens, in winter. Telephone System improved. All main landings are connected with surface. Three new telephones put in. 14 x 6 ½ x 8 pump placed on No. 9 bottom, to pump No. 2 water to the surface. A turbine feed-pump for boilers, with a capacity of 500 gallons at 134 pounds pressure, driven by a steam turbine 90 h. p. 115 pounds steam pressure, 2200 revolutions per minute, direct connected. 12 new radial mining machines. One 55 h. p. induction motor, 480 revolutions a minute, 3 phase 550 volts, installed in power-house to run the vacuum-pump. The old one was sent to shop to be repaired. Two tornado-drills put in No. 2. deep.

*New Rails.*

18 lb. rails	34899 feet
30    "	7543   "
60    "	286    "

There were 93,113 pounds of powder used or 8.6 tons of coal produced for each pound of powder.

Men employed	Skilled	Unskilled
South deep	94	96
South headway	108	29
North headway	52	42
North level	76	22
No. 1 level and Nos. 1 & 2 north deeps,	170	132

*Officers*:—A. S. McNeil, Manager; W. S. McDonald, Underground Manager; John Murphy, M. Steel, Alex. Gillis, Alex. Matheson, Peter E. Morrison, Allan Caldwell, Dan. K. McVicar, Overmen; John A. Ferguson, Chief Engineer; D. B. McDonald, Engineer.

DOMINION NO. 3 COLLIERY.

The number of men employed at this colliery is 164—38 men less than the previous year.

The average days worked a month was 24.7, or one day and seven-tenths more than last year.

No new machinery added; no rails supplied to colliery.

*Officers*:—James Kennedy, Manager; J. R. McNeil, Underground Manager; Joseph Mann, Overman; R. J. Wilton, Chief Engineer.

## DOMINION NO. 4 COLLIERY.

There were 52971 lb. of explosive used and 7.4 tons of coal got for each pound of explosive.

*New Rails in Mine.*

18 lb.....	13281 feet
30 lb.....	7328 "
60 lb.....	5416 "

*Pipes used in Mine.*

Diameter	feet
1 ½ inches.....	14000
2 " .....	
4 " .....	540
6 " .....	100
8 " .....	1340
10 " .....	130

*Narrow work for year ended September 30th, 1913.*

## West Deep.

No. 8 east levels.....	300 feet
" 9 " " .....	700 "
Deeps off No. 8 east level.....	400 "
Haulage-rope, east deep extended	800 feet.

The total quantity of air entering the mine is 100,000 cubic feet. Water gauge 3 inches. This quantity is split at bottom of fan-shaft, 65,000 cubic feet, going east and 35,000 cubic feet going west. The east-deep air is again split at No. 9 east. This split ventilates Nos. 9, 8 and 7 landings, submarine; and the other split ventilates lower sections. Quantity entering No. 9 east split, is 17,000 cubic feet.

There are 245 men employed on the east side and 150 employed on the west side.

Three new concrete mine-dams were built on No. 7 landing, west deep. These extra dams will increase sump capacity. The dams at No. 3 west sump were re-enforced and one new concrete dam built. There were new concrete dams built in the openings between No. 3 and No. 4 collieries, and barrier was re-enforced with concrete. A concrete dam has been built in opening below No. 7 east landing, submarine, to comply with the law governing this matter.

There was no new machinery erected on the surface, but all engines such as compressors, fan, winding, haulage and man engines, were examined, repaired and put in condition during the

past year. The water-shaft underwent general repairs. New spears and buntons for shaft and new brick-work, fittings and cleaning for the boilers, and general repairs to the plant. This plant was closed down for two months during the summer. The pumps underground were given general repairs. The feed-pumps were sent to shop and repaired. Five tons of corrugated iron were put on the bankhead-house, and painted during the year.

*Officers*.—John Casey, Manager; Alex. Matheson, Underground Manager; R. Dinn, Assistant Underground Manager; J. D. McMillan, James Jobe, J. J. McIntyre, Overmen; J. M. Morrison, Chief Engineer.

#### NO. 5 COLLIERY.—RESERVE.

There were 9,443 pounds of powder used, or 24.6 tons of coal got for each pound of explosive used.

During the past year this mine has become entirely a hand-pick mine, the coal being gotten by the extraction of pillars.

#### *Employees.*

Hand pick miners.....	120
Day laborers .....	120
On surface .....	52
	<hr/>
Total.....	295

*Officers*.—W. G. Ross, Manager; David Guthro, Underground Manager; Mark Petrie, R. McCormack, Overman; Thomas Hickey, Chief Engineer.

#### DOMINION NO. 6 COLLIERY.

The air is divided at the bottom of the deep, 5,890 cubic feet a minute going to the east side of the mine, and 60,000 cubic feet going to the west side.

There have been no additions to the surface machinery during the year.

#### *Rails used during the year.*

Length in feet	Weight per yard
12,342	18 lbs.
1,070	60 lbs.
700	30 lbs.

*Pipe used during the year for air lines.*

Length in feet	Diameter in inches
9000	1 1/2
8571	2
134	3
3000	4

*Pump Lines.*

Length in feet	Diameter in inches
625	5 air line
429	5 water line
295	6 "
136	8 "
1781 wooden	8 "

*Powder used during the year.*—51,046 pounds. This was equal to 5.3 tons of coal produced for each pound of powder used.

*No of men employed in each section of the mine.*

No. 4 west section	73 men and 1 boy.
No. 5 "	61 " 1 "
No. 6 "	83 " 1 "
No. 7 "	40

Employed on surface 63 men and 1 boy.

There are 389 safty-lamps kept in readiness for use at this mine.

The fire-fighting aparatus is inspected regularly at this colliery and is kept in good condition.

*Officers.* :—W. R. McDonald, Manager ; H. Wilson, Underground Manager ; J. Bisson, W. Slade, Overmen ; James Smith, Chief Engineer.

## DOMINION NO. 7 COLLIERY.

*Improvements.*

Relaid 240 yards of No. 6 north, and 270 yards of No. 6 south level, and 170 yards, No. 4 north, with 30 pound rails. Also laid 2,000 feet of 7 inch cast-iron pipe, to replace a 4 inch wrought iron line used for pump discharge.

*Machinery added.*

Erected one new auxiliary fan-engine ; put in one new donkey engine and three radial mining machines.

*Rails.*

30 lb. rails.....	1040 feet
18 " " .....	12124 "

Used during year 35,500 pounds of powder. Tons coal produced for each pound of powder 5.6.

*Men employed.*

	Skilled	Unskilled	Boys
Rise section.. .....	50	16	
North side..... .....	103	78	16
South " .....	33	20	13

*Officers* :—P. T. Pendergast, Manager ; W. T. Chew, Underground Manager ; D. G. McMullin, Murdo. Morrison, James Beal, Overmen ; W. A. Baird, Chief Engineer ; William Burke, Surface Foreman.

## NO. 8 COLLIERY, BRIDGEPORT.

The number of men employed at the colliery is 184 or 96 men less than the previous year.

The only coal available, at present in this mine, is the coal lying between the working of the old Sterling mine and this one. Pillars cannot be extracted in this section on account of valuable property overlying them and the cover being thin, the strata would break to the surface.

*Officers* :—John A. McDonald, Manager ; R. Crosby, Underground Manager ; D. K. McDonald, Angus McCuish, Overman ; Dan McNeil, Chief Engineer.

## DOMINION NO. 9 COLLIERY.

The tail-rope-haulage system on No. 3 level south, on south deep has been extended 900 feet. A new landing has been laid on No. 5 level south on south deep. The horse-haulage road on No. 4 level south on south deep has been relaid 1000 feet. The tail-rope system on Nos. 2 and 3 levels north on north deep has been replaced by a plain-rope haulage, doing away with a main-and-tail-rope engine at No. 5 headway on 2 level. This haulage runs the full trip out to the main north-deep. A new landing has been laid on No. 2 level north on north angle-deep, and the north angle-deep haulage road has been extended 800 feet. There has also been repairs on No. 1 level north tail-rope haulage-road, and on the main north and south deep haulage-roads. The south-side motor-road has been relaid 1000 feet with 60 lb. rails.

*Machinery added.*

One 6 x 8 engine on No. 3 level north, off south deep.

One 8 by 12 engine erected on No. 2 level north, off north deep, replacing a 9 x 10 tail-rope engine.

One five-throw pump, started July 28th, 1913, belt driven by a 150 h. p. induction motor which runs 730 revolutions a minute at full load and pumps 500 gallons a minute against a head of 225 pounds.

Four new radial machines started since October 1st, 1912.

There was a 14 x 6½ x 18 inch pump placed at No. 1 level north, on north deep, and 1,500 feet of 6 inch discharge-pipe laid to pump to the pit bottom lodgment.

*Rails.*

18 pound rails	25850 feet
30    "    "	8261    "
60    "    "	1721    "

There were 52,017 pounds of explosives used, and 7.6 tons of coal produced for each pound of explosive.

*Men employed.*

	Skilled	Unskilled
North headway section.....	14	6
Main north deep .....	98	55
North angle deep .....	65	54
Nos. 2, 3 & 4 south level, south deep ....	75	50
No. 3 north and No. 5 south level .....	60	50
	<hr/>	<hr/>
	312	215

Total average daily force, 527 men.

*Officers*:—D. H. McLean, Manager; D. J. McCuish, Underground Manager; G. Darroch, Thos. Casey, Jos. Gillis, R. H. McDonald, Wm. R. Cameron, Overmen; Walter McAulay, Chief Engineer; D. B. McKenzie, Surface Foreman.

## DOMION NO. 10 COLLIERY.

## Emery Seam, Reserve.

The mine is worked on the long-wall system. The long-wall face is under-cut with the disk long-wall machine, and the deeps, levels, and headways are undercut with the puncher machine.



The endless haulage was extended on the main deep, 1,100 feet, and No. 5 north, and No. 5 south levels turned off. No. 5 north was driven 420 feet and No. 5 south 280 feet.

The main-and-tail-rope system was extended on the shaft-level and on No. 4 north, off the deep: 4,000 feet of 45 pound rails were laid on those haulages. The number of horses in the mine has been greatly reduced, and a large part of the output is now delivered to the main-and-tail-rope haulage on the main levels, by means of small engines and jig-wheels.

*Officers*:—James Kennedy, (Acting Manager); Harry Bert, Underground Manager; Thomas McDonald, Philip Kelly, James Canovan, Overmen.

#### DOMINION NO. 11.

This mine is on the emery seam at the foot of No. 3 Bankhead, in the town of Glace Bay. The pitch of the the seam is about 6 degrees. This mine was operated by the same company about twelve or thirteen years ago. The mine was abandoned and allowed to fill with water until Feb. 1st, 1913, when pumping operations commenced. It was pumped dry March 31st, 1913. The first coal was hoisted on April 3rd, 1913.

The mine is entered by means of a slope driven from the outcrop of the seam. The slope is down 1,500 feet and is now in good condition; also a plank-walk has been laid on the traveling road to its extreme end.

The mine is worked on the bord-and-pillar system. The coal is taken out of the mine by an 1- $\frac{1}{8}$  inch steel endless-rope, on the main-haulage. The length of this rope is 4,000 feet. The coal is taken to the main-haulage by means of donkey-engines and jig wheels. This system gives very good satisfaction.

This mine is ventilated by means of direct air-courses. One hundred feet below the fan-shaft, an overcast is driven through the solid rock. The size of this overcast is 7x10 feet. The air is split at the overcast; one split ventilating the west side, the other the east side.

The coal from this mine is handled on No. 3 bankhead. The tippie used is one that had been used at No. 3, when that colliery was producing heavily. An extra road has been laid for splint and dirt from No. 11.

An additional bull-wheel has been added to No. 3 haulage-engine, to operate No. 11 rope. The size of this engine is 22x42 inches.

The coal is screened by one of the screens formerly used by No. 3, size 2 inch, bar screen on top with 13/16 inch netting screen below. The screens are driven by a rope from the same engine that drives No. 3 screens.

A new wash-house 32x52 feet, of Sydney pressed brick has been erected near the mouth of the slope. It is equipped with a 30 h. p. boiler and all the latest modern improvements.

A brick lamp-house 17x34 feet, has been built near wash-house. It is equipped with an electric lamp-cleaning machine, and 150 lamps, 80 of which are in use and seventy reserved in good condition.

A temporary fan-house has been built. A fan has been erected that produces 18,000 cubic feet of air a minute, with a water gauge 3/10 inch. The size of fan shaft is 10x10 feet. Size of fan-engine is 12x14 inches.

The temperature of the mine at the face of No. 2 west level is 50 degrees F; and at the face of No. 2 east level is 49 degrees F.

The average number of men employed a day, is skilled 49, unskilled 31.

Number of pounds of powder used, 3,279 or 7.25 tons of coal produced for each pound of powder used.

#### *Material used.*

8,400	feet of 30 pound rails double tracking main slope
22,396	feet of 18 pound rails
1400	feet of 8 inch pipe..... air line
9500	" " 1-1/2 inch pipe..... "
900	" " 4 inch pipe..... "
600	" " 2 " " .....
1200	" " 6 " " .....water line

The actual water feed of the mine is one hundred gallons per minute.

The compressed air for No. 11 is obtained from No. 3 compressor which has a capacity of 6,000 cubic feet a minute, steam high-pressure cylinder 31 inch, low-pressure cylinder, steam 57 inch, air, high-pressure cylinder 32 inch low-pressure, air 51 inch, stroke 60 inch.

*Fire fighting apparatus consists of:*—1 hose-cart and 1200 feet 2 1/2 inch hose, with hydrants at convenient points around plant; also fire-kings in all colliery-buildings and in suitable places around the mine. 1 fire-pump, capacity 500 gallons a minute. All carpenter work and black-smith work for No. 11 is done in No. 3 colliery.

This mine has been operated so far without horses.

*Officers*:—Manager, James R. MacNeill ; Deputy Overman, Walter Wynn ; Chief Engineer, Robert J. Wilton.

#### DOMINION NO. 21 COLLIERY,

September 30th, 1913.

The slopes are sunk in the southern out-crop of the Gowrie Seam and extends through the to the northern out-crop on a bearing of north  $29^{\circ} 11'$  east, the dip varies from  $10^{\circ}$  north-easterly on the south side of the trough, to  $60^{\circ}$  south-westerly on the north side. The distance from cover on south side of slope to cover on north side of slope, is 1,800 feet, the seam is 5 feet, 4 inches thick, the pavement is fire clay, the roof is shale 17 inches overlaid by a thin seam of varying thickness. 21,853 pounds of powder were used, or 6.3 tons of coal produced for every pound of powder. The method of working is bord-and-pillar. The rooms being driven 25 feet wide, pillar 30 feet. Rooms are parallel to levels on the east side and at right angles to levels on the west side. There is an average of 123 men employed in the mine, 88 of which are skilled men.

#### BIRCH GROVE.

#### DOMINION NO. 22 COLLIERY.

Owned and operated by the Dominion Coal Co., Limited.

The slopes are down 1770 feet on a bearing north  $34^{\circ}$ , 18 min. east, which is nearly the true dip.

The output for last year was 46,751 tons.

The new bank-head is not yet in operation. It is of wood, 155 feet from knuckle to kickback, with screen-house 86 feet long, equipped with shaker-screens. The picking-belt is 48 feet long, by 5 feet wide, running 50 feet a minute. There are two 20-inch belts to convey slack and nut coal to hoppers. The belts run 130 feet and 50 feet a minute. A rotory-tipple has been placed, it is 24 feet above the railway. The bank-head machinery is driven by electricity. The Colliery buildings are, compressor-house 40 x 31 feet: forge, 20 x 30 feet : transformer-house, 23 x 15 feet : engine-house, 23 x 15 feet: wash-house, 30 x 54 ; lamp-house, 30 x 19 feet : office, 37 x 22 feet.

A compressor has been erected, capacity 3000 cubic feet of air a minute, compressed to 8 lb. pressure, a square inch. It is driven by a 600 h. p. motor.

The water-system and fire-protection system mentioned in last year's report is giving good satisfaction.

*Officers:*—Manager, R. Simpson ; Underground Manager, James Mosely ; Chief Engineer, Duncan McDonald.

Appended hereto are the following Tables relating to the Dominion Coal Company, under my inspection :

TABLE I

*Statement Showing the Quantity of Air in Circulation, and Water-Gauge at each Colliery as Existing September 30th, 1913.*

COLLIERY			Cubic Feet per min. of air	Water (In.) Gauge	
Dominion	No.				
	1....		165,000	2.3	
"	"	2....	228,000	4.6	
"	"	3....	86,500	2.4	
"	"	4....	100,000	3.0	
"	"	5....	138,000	1.5	French Slope
"	"	5....	54,000	.4	East Slope
"	"	6....	66,000	1.8	
"	"	7....	68,000	1.7	
"	"	8....	60,500	.4	
"	"	9....	203,000	3.1	
"	"	10....	34,000	.4	
"	"	11....	178,000	.3	
"	"	12....	112,000	1.1	
"	"	14....	123,000	1.7	
"	"	15....	70,000	1.5	
"	"	16....	110,000	.7	
"	"	17....	.....	...	No readings taken
"	"	21....	51,000	.3	
"	"	22....	51,000	.7	

TABLE II

Statement Showing Production from Narrow Work, Rooms, etc., for Year Ended Sept. 30, 1913.

Dom. No.	Narrow Work		Mchne Rooms		Hand Rooms		Pillars		Longwall		Unclass- ified	Total Output
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%		
1..	80,299	14.5	364,974	66.	6,315	1.2	95,155	17.2	.....	.....	5,358	552,101
2..	174,116	21.4	221,179	27.2	8,506	1.1	399,774	49.1	.....	.....	9,210	812,785
3..	2,908	2.3	18,310	14.6	4,756	3.8	99,371	79.	.....	.....	477	125,822
4..	93,275	23.7	212,004	53.9	23,584	6.0	61,100	15.5	.....	.....	3,460	393,423
5..	.....	.....	5,981	2.6	11,597	5.0	212,662	91.6	.....	.....	1,967	232,217
6..	43,541	16.7	216,199	83.	.....	.....	.....	.....	.....	.....	979	260,719
7..	50,659	23.2	95,076	43.7	61,446	28.3	8,491	3.9	.....	.....	1,864	217,536
8..	1,423	1.5	.....	.....	80,673	86.3	11,402	11.2	.....	.....	6	93,504
9..	79,937	20.	223,312	56.	885	.2	93,907	23.5	.....	.....	930	398,971
10..	71,512	34.	93	.....	.....	.....	.....	.....	138,496	65.8	582	210,683
11..	6,022	25.4	17,603	74.1	.....	.....	.....	.....	.....	.....	120	23,745
12..	78,042	22.7	213,623	62.2	31,955	9.3	20,099	5.8	.....	.....	.....	343,719
14..	122,651	30.3	282,348	69.7	.....	.....	.....	.....	.....	.....	59	405,058
15..	62,950	29.5	109,961	51.5	28,249	13.2	.....	.....	12,111	5.7	94	213,365
16..	89,759	36.8	136,974	56.3	10,275	4.2	.....	.....	6,571	2.7	.....	243,579
21..	30,959	21.3	109,778	75.3	3,012	2.1	.....	.....	1,897	1.3	.....	145,646
22..	38,573	82.4	.....	.....	3,005	6.4	.....	.....	5,173	11.2	.....	46,751
Total.....	1,026,626	21.7	2,227,415	47.2	274,258	5.8	1,001,961	21.2	164,248	3.5	25,106	4,719,614

TABLE III

*Timber Used at Collieries for Year ended September 30th, 1913.*

	Dominion No.	PROPS		BOOMS		SLEEPERS	
		Number	Feet	Number	Feet	Number	Feet
	1.....	78,544	706,896	2013	33,412	35,423	141,920
"	2.....	210,855	1792,602	3353	46,978	28,123	144,697
"	3.....	52,196	469,764	406	6,496	4,469	22,264
"	4.....	79,354	647,778	5440	78,686	22,191	88,764
"	5.....	63,431	570,879	339	5,280	8,526	35,504
"	6.....	26,992	193,238	907	13,662	10,885	54,833
"	7.....	66,018	532,756	5693	80,303	15,035	63,920
"	8.....	35,053	245,829	61	854	2,815	11,800
"	9.....	117,319	844,052	2853	40,816	24,630	125,830
"	10.....	120,697	648,243	682	9,466	16,431	67,556
"	11.....	5,367	28,921	.....	.....	4,546	18,184
"	12.....	45,139	261,179	5212	68,297	28,366	114,216
"	14.....	69,651	547,708	10484	139,877	45,265	187,106
"	15.....	51,838	353,553	10741	136,982	30,661	123,822
"	16.....	55,631	382,085	9199	109,999	27,113	108,572
"	21.....	21,877	153,139	.....	.....	11,793	47,672
"	22.....	11,137	76,996	48	672	3,740	15,600
Total.....		1111,101	8455,618	57432	771,780	320,012	1372,260

TABLE IV

*Statement Showing Average Number of Gallons of Water Pumped  
Per Month at each Colliery for Year ending Sept. 30th, 1913.*

Colliery.		Gallons per Month.
Dominion	No.	
	1.....	17,500,000
"	" 2.....	2,100,000
"	" 4.....	45,000,000
"	" 5.....	21,000,000
"	" 6.....	6,500,000
"	" 7.....	11,400,000
"	" 8 W.S.....	40,000,000
"	" 9.....	21,300,000
"	" 10.....	14,700,000
"	" 12.....	4,200,000
"	" 14.....	3,700,000
"	" 15.....	3,200,000
"	" 16.....	3,500,000
"	" 21.....	1,300,000
"	" 22.....	1,000,000
Total .....		196,400,000



REPORT OF NEIL A. NICHOLS, *Deputy Inspector.*

I beg leave to submit my annual report on the coal mines in the northern district of Cape Breton County for the year ended September 30th, 1913; also report of Dominion No. 1, No. 12, No. 14, No. 15, No. 16, No. 17, in the southern district of Cape Breton County. I am pleased to be able to report that the year 1913 has been a most successful one, the output of the collieries is in excess of any year in the history of Cape Breton coal mining.

During the year the system of riding-rakes was installed in the New-Waterford district.

The Nova Scotia Steel & Coal Company have also installed a system of riding rakes on the levels in No. 2 and No. 3 collieries. All the travelling roads in my district are in fairly good condition, with the exception of Sydney No. 2; this travelling road, owing to soft clay and springs in the pavement, render it very difficult to keep the foot-path in good condition. I have always instructed the officials to keep the travelling roads in the best possible condition.

To the best of my knowledge, the mines regulation act has been strictly followed.

I am sorry to have to report twenty-nine accidents, thirteen of which were fatal, seven by falls of stone, two by falls of coal, two by runaway boxes, one by being run over with trip, and one killed by coming in contact with a live wire on the travelling road.

## SYDNEY NO. 1 OR PRINCESS COLLIERY.

(Owned and operated by the Nova Scotia Steel & Coal Co. Limited)

There are 647 men employed at this colliery, 529 in the mine and 118 on the surface. Of those employed in the mine, 283 are skilled and 246 unskilled, and of those on the surface, 59 are skilled and 59 unskilled. There are also 65 boys employed at the colliery, 58 in the mine and 7 on the surface.

There were 12,684½ lbs. of explosives used during the year. The Marsuat safety lamps are in use, of which number there are 653.

The system of working is bord-and-pillar, bords 17 feet wide, pillars 60 feet thick. The coal is all mined by hand-picks. The seam is from 5 to 6 feet thick and the coal soft and gaseous. The

roof and floor are of shale. Some of the districts are dry ; water-tubs are used for spraying. Direction of true dip, south 80 degrees east.

*Rails in mine* :—49,716 feet of 12 pound rails, 69,012 feet of 18 pound rails, and 86,644 feet of 28 pound rails.

Cover at face of south deep at boundary line, 1,146 feet, of north deep at boundary line 1,040 feet.

I visited this colliery eighteen times during the year.

The following additions have been made to the machinery during the year, chain grates, placed under five boilers, with coal bunker-pockets for supplying the grates with fuel. One compound steam driven air compressor having steam cylinders 15 inch and 28 inch diameter by 36 inch stroke, and air cylinders 27 inch and 17 inch diameter, for the purpose of supplying air to both Nos. 1 and 2 collieries.

*Colliery Officials*.—Manager, J. W. Johnstone ; Underground Managers, John Hill, Edward Lockman ; Overmen, Duncan Jardine, J. D. Colburn, Frank Ferguson, Arnold Ernest, Charles Young ; Surface Foremen, Michael Dwyer ; Chief Engineer, Joseph J. MacKinnon.

Length of fan drift, 34 feet ; area, 80 feet ; fan shaft, 10 feet in diameter.

Guibal fan-house 30 by 16 feet, wood, covered with metal shingles. Capell fan-house, 24 by 12 feet, brick. Actual distance of Guibal fan-house from shaft 20 feet, Capell fan-house, 40 feet.

The air is divided once at the pit bottom. The split going south is one continuous current around the working face, returning through the old workings to the fan-shaft at No. 5 colliery. The air going north is divided into three splits and is conducted around the working faces to main return, thence to No. 5 colliery. Size of airway is 5 feet 6 inches by 9 feet : wood and stone stoppings, and the ordinary tarred brattice:cloth are used at this colliery.

The north side is operated by a plane haulage-system, two ropes 7,200 feet long, 30 cars on each rake, weight of empty car 850 pounds, capacity 1,500 pounds. The coal is hauled to these ropes by horses or small haulage-engines.

Pitch of slope, one in eleven ; length of slope, 9,200 feet, width, 9 feet.

Depth of coal shaft, 680 feet, 13 feet diameter. Depth of man-shaft, 680 feet, 11 feet diameter.

## SYDNEY NO. 2 OR LLOYD'S COVE COLLIERY.

(Owned and operated by the Nova Scotia Steel & Coal Co. Limited)

This mine is about 950 feet north-west of No. 1 colliery. There are four slopes—7 feet wide—sunk on the Lloyd's seam, which overlies the main seam. Endless haulage is in two of these slopes, the empty cars go down No. 1 and the full ones come up No. 2 slope. No. 3 slope is used for a travelling road and pipe-line and No. 4 slope for a return air-way.

The cover at the shore line is 104 feet. On account of this thin cover, the first lift is 3,400 feet from the crop-line, in order to give 450 feet of cover, and the crop line is 1,600 feet from the shore line. The seam is from  $5\frac{1}{2}$  to  $6\frac{1}{2}$  feet thick; the coal is soft and gaseous. The mine is damp; direction of true dip, east; the roof and floor are of shale.

The system of working is bord-and-pillar. Rooms 18 feet wide, pillars 23 to 25 feet, according to cover. Cross-cuts are driven every sixty feet. The coal is all mined by machines. Compressed air is supplied from No. 1 colliery.

The system of timbering is props-and-caps, sometimes props-and-booms. Size of timber  $4\frac{1}{2}$  inches at the small end.

There are 362 men employed at this colliery, 152 skilled and 162 unskilled work in the mine, and 7 skilled and 41 unskilled, on the surface. Marsnat safety lamps are used, of which there are 365.

There were 39,134 pound of explosives used during the year.

There are 41,700 cubic feet of air a minute in circulation.

*Rails in mine* :—25,174 feet of 28 pound rails and 61,965 feet of 18 pound rails.

This colliery was visited fifteen times during the year.

One wooden bankhead was built to replace bankhead destroyed by fire.

There are six dams in the mine, size 7 x 6 x 12 feet thick.

Water is supplied for colliery purposes from Pottle's lake, North Sydney.

In case of fire, connection is made with a hydrant placed in the water-main.

*Officers* :—Manager, Wm. Tobin; Underground Manager, Daniel Brown, Overmen, Wm. R. Coll, Wallace Caldwell, James Costello; Surface Foreman, Edward Wilkinson.

## SYDNEY NO. 3 OR FLORENCE COLLIERY.

(Owned and operated by the Nova Scotia Steel & Coal Co. Limited)

There are 594 men employed at this colliery, of which 249 skilled and 234 unskilled work in the mine, and 41 skilled and 70 unskilled on the surface. There are also 53 boys employed, 48 of whom are in the mine and 5 on the surface

There were 22,049 pound of explosives used during the year or 9.4 tons of coal produced for each pound of powder.

This mine is entered by three slopes, driven parallel to one another. One slope is used for haulage, one for a travelling road and the other for a return air-way. The seam is from  $4\frac{1}{2}$  to  $5\frac{1}{2}$  feet thick. The coal is gaseous; the floor and roof, shale. The mine is dry in parts and water-tubs with spray-pipes are used. The seam dips one in ten to one in twelve. Direction of true-dip north 60 degrees east. The coal is mined by coal-cutting machines operated by compressed air. There are forty-two of these in the mine.

Method of working is bord-and-pillar; width of rooms, 20 feet; pillars 25 to 40 feet thick. Cross-cuts are driven every sixty feet. System of timbering is props-and-caps, sometimes props-and-booms, according to the condition of the roof. Size of timber used is  $4\frac{1}{2}$  inches, small end.

This colliery was visited eighteen times during the year.

There are 184,858 feet of 18 pound rails, and 38,858 feet of 28 pound rails in the mine.

540 Marsuat safety lamps are in use.

Average thermometer reading, 55 degrees. Average barometer reading, 30 inches.

Length of fan drift, 29 feet, area, 60 square feet.

There are two sections in the mine, a north and south side. The air is divided once at the bottom of the slope and each side of the mine has a separate split of air. Asbestos-fibre brattice cloth and board and brick stoppings are used in this colliery.

Pumps are operated by compressed air. Maximum quantity of water that can be discharged in one hour, 24,000 gallons.

This colliery is supplied with water from North Sydney main-line. In case of fire, connection can be made with the main-line.

*Officers*;—Manager, Angus A. Ferguson; Underground Manager, Robert Dickson; Overmen, Solomon Dewfall, Hugh Dickson, John Hunter.

## SYDNEY NO. 4 OR SCOTIA COLLIERY.

(Owned and operated by the Nova Scotia Steel & Coal Co. Limited)

This colliery is located about two miles to the north-west of No. 3 colliery. Two miles of railway run from the main line to the colliery.

The bankhead and trestle approach are about 800 feet long, reaching from the slope to the tracks. The mine cars are hauled out of the slope and backed down this incline by gravity to a hand-operated tippie. The coal passes over one bar-screen, dividing it into two sizes, the large coal being delivered to a picking-belt, 5 feet wide and 43 feet long, and having an adjustable jib. The smaller coal passing through the bar-screen is conveyed by an endless rubber-belt-conveyor to slack-hopper. The coal is mined by electric machines. There are also a number of hand-pick miners employed in the mine.

Plane haulage is used. Diameter of haulage rope is  $\frac{7}{8}$  of an inch. Pitch of slope, one in eleven. Weight of empty car, 1,080 pounds. Capacity, one ton; number of cars on rake, 20. Total length of slope, 3,750 feet, width, 10 feet. Thickness of seam, 3 to 5 feet. Coal is soft. Mine is free from gas, and is damp. Roof and floor are shale; direction of true dip east. Method of working is bord-and-pillar. Width of rooms, 20 feet; width of pillar, 20 feet. The pillars are increased according to cover. Size of timber,  $4\frac{1}{2}$  inches at the small end. System of timbering, props-and-caps, sometimes props-and-booms, according to condition of roof.

There are two sections in the mine, north and south side. The main slope is the intake, the air being split at the bottom of the slope and returning north and south to the fan-shaft. Board and stone stoppings and the ordinary tarred brattice-cloth are used.

There were 35,639 pound of explosives used or 4.9 tons of coal produced per pound of powder.

There are 518 men employed at this colliery, of which there are 251 skilled and 183 unskilled in the mine and 30 skilled and 54 unskilled on the surface. There are also 39 boys employed, 34 of whom are in the mine and 5 on the surface.

Average thermometer reading, 61 degrees. Average barometer reading, 30.08 inches.

Distance of fan-house from air shaft on the south side of the slope is 77 feet, and on the north side 53 feet.

There are switches operated by balance weight at mouth of slope. Swinging Samson-posts are placed at intervals in the slopes to protect the sinkers.

In case of fire, water can be supplied from a temporary reservoir on the surface. The water supply is obtained from an artesian well.

*Rails in mine*.:—There are 5,190 feet of 12 pound rails, 90,217 feet of 18 pound rails and 37,218 feet of 28 pound rails.

454 Marsuat safety lamps are in use.

*Improvements during the year*.:—One motor driven turbine-pump, having capacity of 400 gallons a minute against a head of 295 feet, when running at 450 revolutions a minute, direct connected to and driven by a 75 h. p. 240-volt direct-current motor.

In the course of construction, one 300 KW 900, revolutions a minute, 2200 volt, 3-phase 60-cycle motor, direct connected to a 200 KW 900 RPM 250/265 volt generator, with three each 150 KW 1100/2200 volt single phase transformers. This equipment is housed in a reinforced concrete fire-proof building, located about 4000 feet from the mouth of the slope, direct current cables being conveyed underground through a bore-hole about three hundred feet deep. This equipment is supplied with three-phase alternating-current generated from the central power station at blast furnace.

*Officers*.:—Manager, Archie Ferguson; Underground Manager, James Greenwell; Overmen, Hugh MacLellan, John W. Miles, John Ramsdale; Surface Foreman, Thos. W. Jardine; Chief Engineer, Geo. H. Johnston.

#### SYDNEY NO. 5 OR QUEEN COLLIERY.

(Owned and operated by the Nova Scotia Steel & Coal Co. Limited)

There are 318 men employed at this colliery. Of this number 156 skilled and 116 unskilled are employed in the mine and 16 skilled and 28 unskilled employed on the surface. There are also 26 boys employed, 21 of whom are in the mine and 5 on the surface.

There were 22,839 pound of explosives used during the year.

There are fifty working places in the mine. Seam is 5½ feet thick; coal soft and gaseous. Roof and floor are shale. Direction of true-dip east. Method of working, bord-and-pillar; width of room, 18 feet; pillars 24 feet thick. Size of timber used 4½ inches small end. System of timbering is props-and-caps, sometimes props-and-booms, according to condition of roof.

There are two sections in the mine. The north side is ventilated by the return from No. 1 colliery, one continuous current passing round the working faces, thence to fan-shaft. The south side is ventilated by a separate split from the main shaft. Quantity of air in circulation 100,000 cubic feet per minute, water gauge 4.05. Board and stone stoppings and abestos brattice cloth are used.

The Marsuat safety lamps are in use in this colliery, of which there are 320.

*Cover*:—North-shaft levels, 275 feet; Sullivan's level, 346 feet; headway, Sullivan's level, 320 feet; South levels, 240 feet; Headway at shore line off south-shaft levels, 224 feet.

Thermometer reading, 62 degrees; barometer reading, 30.20 inches.

*Rails in mine*:—1,100 feet of 12 pound rails, 67,444 feet of 18 pound rails, and 12,160 feet of 28 pound rails.

Pit-head and bank-head are of wood. The loaded mine cars are pushed by hand from the cage over a platform scale and onto a hand-operated dump-tipple which delivers the coal to a pair of shaking screens, 21 feet long by  $5\frac{1}{2}$  feet wide. The cam shaft operating the screens runs at 88 revolutions per minute. The upper screen is furnished with a set of blank plates for making run-of-mine, and perforated plates with  $2\frac{1}{2}$  inch holes for making screen coal. A similar screen underneath this furnished with  $\frac{3}{4}$  inch holes divides the coal into slack and nut.

At right angles to the screens are two picking-belts each 47 feet long with a 20-feet adjustable jib arranged to lower into the bottom of 15 ton coal-hoppers. One of the picking-belts, 5 feet wide, receives the screened coal, and the second belt, which is four feet wide receives the nut coal. This allows these two classes of coal to be picked. These belts run at the rate of forty feet per minute, the driving sprockets being operated by a worm-and-worm gear. At the end of these belts, there is a hinged, adjustable chute which receives the coal from the picking-belts and delivers it into box cars. All the machinery in the screen-house is driven by a 35 h. p. 240 volt, direct current motor.

Maximum quantity of water that can be discharged in an hour, 18,000 gallons.

Connection is made with hydrant on water main for protection against fire.

The water supply is obtained from Pottle's Lake, North Sydney.

The travelling road is in good condition.

The mine was visited fourteen times during the year.

*Officials* :—Manager, Robert Robertson; Underground Manager, Alex. MacDonald; Overmen, Andrew Baillie, Fred. MacDonald; Surface Foreman, Alexander Boyd.

#### JUBILEE MINE.

(Owned and operated by the Nova Scotia Steel & Coal Co. Limited)

This mine is entered by a shaft 468 feet deep, 11 feet diameter, divided into two compartments.

The shaft was sunk in the year 1897 by the General Mining Association. Levels were driven north and south, 200 feet from shaft bottom. It was then abandoned until December, 1912, when the Nova Scotia Steel & Coal Company pumped it out, and put the mine in good condition.

There are 83 men employed at this colliery, 62 men and 3 boys in the mine and 21 on the surface.

The output for the months worked was 11,589 tons. Explosive used 1,614 pound of powder.

Number of lamps in use, 80, Marsuat.

Quantity of air in circulation at or near working faces, 6,500 cubic feet a minute.

Average water gauge reading, 1-2.

“ thermometer reading, 62°.

“ barometer reading, 30.20 inches.

There are two sections in mine, north, and south.

Maximum quantity of water that can be discharged in an hour, 9,000 gallons.

There are 4 chain mining-machines operated.

The development work during the year was: South level extended 100 feet; South headway extended 180 feet; North deeps extended 300 feet; Longwall face extended 300 feet.

Method of work, longwall.

There is in course of construction on surface, one electric hoist driven by an 85 h. p. 500 RPM. motor, the hoist being capable of hoisting 2,240 pounds at a maximum speed of 15 feet a second. The winder is controlled by a converter set, consisting of a direct current shunt-wound generator with commutation poles driven by a slip-ring type, 3 phase induction-motor, having a mean out-



put of 67 KW at a speed of 1,175 revolutions a minute, this set being supplied with 3 phase 60 cycle alternating-current, at 2,200 volts.

In the course of construction underground, there is being placed one No. 2, 4-stage turbine pump, capacity 150 imperial gallons a minute, against a head of 500 feet, when operating at 1,700 revolutions a minute. This pump is directly connected to and driven by a 42 h. p. 1,800 revolutions a minute, 220 volt, 60 cycle 3-phase motor controlled with an automatic starting-compensator.

There are 4,562 feet of 18 pound rails in the mine.

This company has commenced the sinking of a new shaft 17 feet by 26 feet, to the same seam of coal at a point to the eastward of the Jubilee shaft, some 1,150 or 1,200 feet.

The company purpose to drive deeps from A shaft to B shaft, so that when the shaft at B has reached the coal, the pit bottom will be in readiness for mining coal.

*Officers:*—Robert Robertson, manager; George Slavin, underground manager; Angus McKeigan, George Morris, overmen; W. E. Oram, surface foreman; Alex Allen, engineer.

#### INDIAN-COVE MINE.

(Owned and operated by the Sydney Coal Co.)

This mine is at Indian Cove, near North Sydney. It is entered by a level 10 feet wide, driven from the crop 2,950 feet. The seam is 4 feet, 6 inches thick, pitching 7 degrees. Direction of true dip north, 10 degrees east. The coal is soft and free from gas; the roof is hard shale; the floor fire-clay.

The mine is damp with natural drainage. Rooms are turned off at right angles and driven to the rise. Method of working, bord-and-pillar; rooms, 18 feet wide; pillars from 4 to 8 feet thick. Thickness of cover about fifty feet. System of timbering, props-and-caps.

One thousand pounds of explosives were used during the year.

Number of men employed, seventeen—four on the surface and thirteen in the mine.

The water for the plant is supplied from a small brook near by. Ordinary brattice cloth is used and the stoppings are of wood.

The airways are 5 x 10 feet and the air-shaft 8 feet in diameter. About 6000, cubic feet of air a minute, circulates in one continuous current. Ventilation is natural.

There are 1,200 feet of 20 pound rails, 1,600 feet of 18 pound rails, and 5,520 feet of 11 pound rails in the mine.

This colliery was visited ten times during the year.

Mr. Hugh Campbell, is underground manager and acting manager.

#### MACKAY MINE.

(Owned and operated by the Colonial Coal Co., Limited.)

Explosives used, 2,500 pounds.

There are eighty men employed, 70 in the mine and 10 on the surface.

Method of working is bord-and-pillar; rooms 20 feet wide; pillars vary in thickness from 12 to 20 feet, according to cover. There are twenty-five working places in the mine, divided into two sections north and south. System of timbering is props-and-caps, sometimes props-and-booms, according to condition of roof. The timber is the Cape Breton product.

This mine is about two miles to the westward of North Sydney. The seam is four feet thick; coal, soft and free from gas. Roof is of hard clay and sandstone, and the floor of fire-clay. Mine is damp; pitch of true dip north 51 degrees east. Pitch of slope is ten degrees, thirty minutes; length of slope 1,250 feet, width 9 feet. Plane haulage is used, size of rope  $\frac{7}{8}$  of an inch; weight of empty cars, 750 pounds, capacity 1,400 pounds.

*Rails in mine*:—1,200 feet of 26 pound rails, 600 feet of 21 pound rails, 5,424 feet of 18 pound rails and 16,096 feet of 12 pound rails.

Nine thousand cubic feet of air per minute, circulates in one continuous current. Size of air-ways, 5 x 6 feet. Fan is alongside the shaft. Ordinary brattice cloth, and board-stoppings are used. Size of fan-house, 12 x 9½ feet with 8 feet post.

There is one 75 h. p. electric induction-motor, geared to the briquetting machinery, which consists of three separate elevators, two distributing tables, one disintegrator, one press and mixer; one 60 h. p. engine, 19 x 12 inches, belted to a 45 kw. generator. All the buildings on the surface are lighted by electricity and the mine is supplied with electric power.

The water supply is obtained from Pottle's Lake, North Sydney.

In case of fire, connection can be made to hydrant on water main.

*Officers* :—Manager, David Rorison ; Underground Manager, Adrew Irvine ; Engineer, Jas. W. Weir ; Surface Foreman, Henry Snow.

This mine was visited twelve times during the year.

The briquette plant, which was burned to the ground over a year ago, has been rebuilt. The capacity of the plant is ten tons an hour. The plant is electrically driven, by a motor of 75 h. p. The coal and pitch are crushed separately and dropped into pockets, whence they are conveyed by elevators to distributing tables. When the mixture leaves the tables, it is dropped into the disintegrator, then conveyed by an elevator to a mixer, where it is heated to melt the pitch. It is then conveyed by a spiral-conveyor to the press where the briquettes are finished.

#### COLONIAL MINE.

(Owned and operated by the Colonial Coal Co., Limited.)

This mine at Little Bras d'Or bridge on the Bras d'Or Lake. The mouth of the slope is about 200 feet from the water and for vessels drawing up to 19 feet, the shipping situation is unexcelled. The new extension of the I. R. C. is within half a mile of the mine.

There were eighty men employed at this colliery during the year, fifty in the mine and thirty on the surface.

11,195 pounds of explosives were used.

Method of working is bord-and-pillar ; rooms 20 feet wide ; pillar from 12 to 20 feet, according to cover. System of timbering is props-and-caps ; where roof is bad, booms-and-props are used.

There are twenty working places in the mine, in two sections, north and south. Length of slope 1,320 feet, 9 feet wide. Direction of true dip south, 80 degrees east. Thickness of seam, 4 feet, 9 inches. Coal is soft, roof of sandstone and the floor of fire-clay. Mine is damp and no spraying system is necessary.

There are 9,900 feet of 28 pound rails ; 21,019 feet of 12 pound rails and 460 feet of 18 pound rails in this mine.

Water guage 1.8 inches. Quantity of air in circulation, 17,500 cubic feet a minute. Ordinary brattice cloth is used to conduct the air to the working faces.

Maximum quantity of water that can be discharged in an hour, 6,000 gallons. Capacity of reservoir on surface, 187,500 gallons.

A trip haulage is used, 5 cars on rake; weight of empty cars, 840 pounds; capacity 1900 pounds.

Open lights are used. Swinging Samsons and switches are placed at intervals in the slope.

The works are supplied with fire extinguishers.

This mine was visited twelve times during the year.

*Officers*.—Manager, Thos. Carr; Underground Manager, John Quinn; Chief Engineer, William MacGillvary.

There were erected, an elevator to the shipping pair, capacity 60 tons an hour, driven by a 15 h. p. motor; and a storage bin for briquettes, and a 7 h. p. motor to drive fan.

#### DOMINION NO. 1, COLLIERY.

(Owned and operated by the Dominion Coal Co., Limited.)

This mine is entered by a shaft on the Phalen seam, near the southern end of Lingan bar. The shaft is 154 feet deep,  $10\frac{1}{2} \times 24$  feet. It is divided into two compartments, one of which is used for a man-shaft, being walled off from the coal shaft. The depth of the material shaft is 135 feet,  $11 \times 18$  feet and the fan-shaft 11 feet in diameter, 143 feet deep.

The mine is gaseous; roof and floor are shale; seam pitching one in fourteen. The direction of the true dip is north 89 degrees east. Coal is 8 feet thick; mine is damp, except in a few places.

There is no spraying in the mine; accumulations of dust are loaded into boxes and sent to the surface.

The method of working is bord-and-pillar, rooms 20 feet wide, pillars from 25 to 40 feet. Most of the pillars are now 40 feet thick. The timber used is 5 inches at the small end and is obtained in the province. Method of timbering is props-and-caps, sometimes props-and-booms, according to the condition of the roof.

There are 591 men employed at this colliery, of which 289 are skilled and 211 unskilled are employed in the mine and 91 on the surface. There are also 33 boys employed, 23 of whom work in the mine and 10 on the surface.

There were 83,394 pounds of explosives used during the year.

Coal is mined by machines, there being 9 air-drills, 15 shearing machines, and 42 undercutting machines.

The mine is divided into two sections, south side, and angle-deep. On the south side, there are 237 men and boys, and on the angle-deep, 286 men and boys.

Quantity of air in circulation, 165,000 cubic feet a minute; w. g. 2.2 inches. Average thermometer,  $56^{\circ}$ ; Average barometer, 29.9 inches. There is a fire brigade of 35 who practise regularly. The air is divided at bottom of fan-shaft, one split going south and one going to angle-deep. Area of south intake,  $10 \times 9 = 90$  square feet. Area of angle-deep intake,  $10\frac{1}{2} \times 7 = 73.5$  square feet.

The stoppings are built of stone, bricks and boards. Brattice cloth is used. Length of fan drift, 10 feet, area 36 square feet.

The Ackroyd & Best safety lamps are in use in the colliery, of which there are 525.

*Rails*:—There are 128,421 feet of 18 pound rails, 44,033 feet of 30 pound rails and 29,451 feet of 56 pound rails in this mine.

*Officers*:—Manager, John Munroe; Underground Manager, Hector Campbell; Assistant Underground Manager; Adrew Scott; Overmen, Archie T. Ferguson, Joseph Farrell, Dan. L. Johnston, Walter Donovan; Surface Foreman, Henry Mitchell; Chief Engineer, Aubrey Stevens.

This colliery was visited twenty-four times during the year.

Maximum quantity of water that can be discharged in an hour, 105,000 gallons.

*Barometer and Hygrometer Readings, Dominion No. 1 Colliery, October 1912, to September 1913.*

Month	HYGROMETER.				BAROMETER.	
	Intake		Return		Max.	Min.
	Max.	Min.	Max.	Min.		
October	89%	50%	94%	87%	30.32	29.30
November	60%	59%	94%	89%	30.12	29.40
December	100%	62%	94%	89%	30.26	28.50
January	100%	60%	94%	89%	30.46	28.72
February	100%	62%	94%	89%	29.90	29.28
March	100%	68%	94%	89%	30.54	29.54
April	100%	51%	94%	89%	30.12	29.28
May	92%	60%	89%	89%	30.18	29.60
June	88%	75%	89%	89%	30.08	29.48
July	90%	65%	89%	89%	30.	29.60
August	91%	62%	89%	89%	30.26	29.56
September	100%	62%	89%	89%	30.36	29.62

## DOMINION NO. 12 COLLIERY.

(Owned and operated by the Dominion Coal Co., Limited.)

These slopes are on the Victoria seam, a half mile from the shore and are down 3,700 feet. Plane haulage is used, the diameter of rope being one inch. Eighteen cars are hauled in each rake, capacity of box 2,000 pounds, tare 850 pounds.

The seam is 6 feet 4 inches thick. Coal soft, pitching thirteen degrees. Direction of true dip north 38 degrees, 40 minutes east. The roof and floor are hard freestone. Mine is gaseous and damp. There are two air crossings, 6 x 10 feet over the main and back slopes, one hundred and fifty feet from the mouth of the slope.

The fan-house is of steel,  $18\frac{1}{2}$  x  $14\frac{1}{2}$  feet, and 8 feet high; cupola 4 feet. Distance from air shaft, 30 feet.

The mine is supplied with Ackroyd & Best safety lamps, of which there are 475 in use. 63,440 pounds of explosives were used during the year.

Number of men employed at this colliery, 435. Of this number 215 skilled and 174 unskilled worked in the mine, and 33 skilled and 23 unskilled on the surface. There are also 13 boys employed, ten in the mine and three on the surface.

There are thirty-three mining machines in the mine.

*Number of rails in mine:*—10,568 feet of 60 pound rails, 13,385 feet of 30 pound rails and 117,363 feet of 18 pound rails.

The mine is divided into two sections, east and west; number of working places, one hundred and twenty-five.

Number of dwellings—sixty single houses and fifty-one double houses.

The pumps are operated by air at a pressure of 75 pounds a square inch, and are capable of discharging 12,000 gallons an hour. There are no dams in the mine.

There are two reservoirs on the surface, the largest having a capacity of 6,000,000 gallons, the smaller 500,000 gallons. The water supply is from Kearney's Lake.

The fire protection service consists of one hose-reel and 1,500 feet of hose; one 500 gallon duplex fire-pump, and six hydrants with a pressure of 60 pound per square inch; one forty-gallon, chemical fire-engine, thirty-four chemical fire-extinguishers in suitable places in the mine and on the surface.

There is one compressor-house, 48x78 feet, built of brick and steel.

Bankhead is of wood with concrete floor; roof and sides are covered with corrugated iron.

One electrically-driven, compound compressor was erected, capable of producing 3,300 cubic feet of air a minute.

*Officers*:—Manager, Angus R. MacDonald; Underground Manager, E. A. Lind; Overmen, Rod. V. MacNeil, David Morrison, James Campbell; Surface Foreman, William White; Master Mechanic, Melvin Larsen;

#### DOMINION NO. 14 COLLIERY.

The slopes are sunk in the Victoria seam, one mile to the east of No. 12 colliery and about a half mile from the shore. The two slopes are down 3,300 feet and are 12 feet in width. Direction of true dip north 38 degrees, 30 minutes east; pitch 12 degrees. Thickness of seam 6.5 feet.

The seam is gaseous; the mine is damp and no spraying is necessary. The roof is bituminous shale and sandstone, and the pavement is an argillaceous slate covered with from two to four inches of fire clay. 72,296 pounds of explosives were used during the year.

Method of working, bord-and-pillar, rooms and pillars each being 20 feet wide to a depth of 290 feet, and the pillars 35 feet wide below this depth.

System of timbering, props-and-caps and booms-and-props, where necessary. The minimum diameter of small end of props is 5 inches.

There are 455 men employed at this colliery, of which number 220 skilled and 178 unskilled are employed in the mine and 57 on the surface, 30 skilled and 27 unskilled. There are also 12 boys employed, 10 in the mine and 2 on the surface.

The mine is divided into sections, east and west. There are 194 working places. Nine new balances were put in operation during the year. Four air-courses were driven a distance of 500 feet from No. 5 to No. 4 levels, two being on the west side and two on the east side.

Brick stoppings have been put on each side of the slope down to No. 1 landing.

There are forty-five coal-cutting machines and twelve air-drills in the mine.

*Rails in mine*:—51,272 feet of 18 pound rails, 4,247 feet of 30 pound rails, and 1,224 feet of 60 pound rails.

This mine was visited twelve times during the year.

The length of fan-drift is 20 feet and the area 140 square feet. The fan-shaft is 10x14 feet. The distance of fan from fan-shaft is twenty feet. Size of air-ways, 12x6.5 feet. The air is divided once at the bottom of the slope, one split going east and one going west. Total quantity of air in circulation, 123,500 cubic feet a minute. The ordinary oiled brattice-cloth and board stoppings are used.

Average water gauge, 1.7 inches. Average barometer reading, 29.50 inches. Average thermometer reading, 58 degrees.

Ackroyd & Best safety lamps to the number of 520 are used in this mine.

There are a colliery-office, 32x25 feet, and a building 50x22 feet, part of which is used as a district superintendent's office and telephone-central and the remainder as firemen's club rooms and hose-reel house; a machine shop, 36x35 feet; forge 45x56 feet; ambulance house 33x13 feet; stables, 27x37 feet; compressor house, 48x78 feet; fan-engine house, 17x50 feet; the last two buildings, being built of brick.

The bankhead is of wood, roofed and shingled with corrugated iron, and has concrete floor.

A lodgement having a capacity of 45,000 gallons has been driven below No. 5 landing. A pump, 13x7x12 has been installed which pumps from this lodgment to the pump at No. 3, a distance of 1,500 feet.

There are two small dams in the mine (temporary ones), and a reservoir on the surface, holds about 2,500,000 gallons.

The travelling road is in good condition.

The fire protection service consists of one hose-reel and 1,500 feet of hose; one 500-gallon fire-pump; four hydrants with a pressure of 100 pound to the square inch; one chemical fire-engine, and eighteen chemical fire-extinguishers at suitable places in the mine and on the surface.

One electrically driven, cross-compound compressor, 30x19x30 inches, compressing 3,300 cubic feet of air a minute was erected. Air is supplied to No. 15 colliery through a bore-hole.

An extension, 48x30 feet, to the compressor house, and a stone tippie, 45x21 feet, have been erected during the year.

There were 44 single dwellings, 82 double dwellings, 1 manager's house, 1 underground manager's house, 1 engineer's house built.



*Officers*:—Manager, Bart. Connors; Underground Manager, John P. MacIntyre; Overmen, Joseph Pickup, John J. MacPhee, George MacLean; Surface Foreman, Michael J. Laffin; Master Mechanic, Hugh J. MacNeil.

#### DOMINION NO. 15 COLLIERY.

These slopes are sunk on the Lingan seam, about 3,700 feet from the shore line and 400 feet east of No. 14 colliery, and running parallel with No. 14 slopes. The length of slope is 2,950 feet, width 12 feet. Direction of true dip north 39 degrees, 30 minutes east. The seam is 5.5 feet thick and the pitch, 20 degrees. The roof is shale and clay with alternate bands of sandstone, and the floor is very hard clay. The mine is damp, no spraying system is used.

The coal is gaseous. Method of working is bord-and-pillar. The rooms are 20 feet wide and the pillars 20 feet thick in the upper sections, increasing in thickness to the deep. System of timbering is booms-and-props and props-and-caps, the minimum diameter of small end of prop being 5 inches.

There were 38,594 pounds of explosives used during the year.

Three hundred and eighty-five men are employed at this mine, of which number 130 skilled and 200 unskilled are underground, and 55 men on the surface. There are also 6 boys employed, 5 underground and 1 on the surface. There are 140 working places in the mine.

Ackroyd & Best safety lamps to the number of 493, are in use.

There were 40 mining-machines, and seven air-drills used during the year.

*Rails in Mines*:—7,000 feet, 60 pound rails, 4,650 feet of 30 pound rails and 124,960 feet of 18 pound rails.

This colliery was visited twelve times during the year. The air-shaft, 12 x 14 feet in the clear, and 42 feet deep, has been concreted from top to bottom. The airways are 5 x 10 feet. The air is divided once at the bottom of the down-cast, one split going east and one west. Quantity of air in circulation, 70,000 cubic feet a minute.

The ordinary oiled brattice-cloth and board and brick stoppings are in use.

Average water guage, 1.5 inch. Average thermometer reading, 60 degrees. Average barometer reading, 29.50 inches. Length of fan-drift, 35 feet, area, 140 square feet. Fan-house is built of brick, size 14 x 44 feet. The fire-protection service con-

sists of one hose-reel and 800 feet of hose: one 500-gallon fire-pump and four hydrants, with a pressure of 100. pound a square inch: twenty-two chemical fire-extinguishers placed at suitable places on the surface and throughout the mine. The water is obtained from Kearney's lake.

The buildings at this colliery are:—One wash house, 30 x 60 feet; one lamp-house, 14 x 22 feet; one blacksmith shop, 28 x 43 feet; one carpenter shop, 28 x 43 feet; office, 28 x 38 feet; fan-house, 14 x 44 feet; stables, 35 x 40 feet; electrical auxiliary engine-house, 22 x 45 feet; boiler-house (built of brick) 41 x 55 feet; magazine, 24 x 35 feet; detonator-house, 6 x 8 feet. The last two named houses are built of concrete.

There are sixty-seven double houses at this colliery, one manager's house, one underground manager's house and one large boarding-house.

There are two small temporary dams in the mine and a reservoir on the surface, which holds about 2,500,000 gallons.

Thirteen hundred feet of the travelling road were brushed and re-timbered during the year and the road was laid with 60 pound rails for riding rakes. A man-hoist engine, 13x16, was erected, the wash-house renovated by replacing the old boxes with wire lockers; and a warehouse, 60x30, built of wood.

*Officers:*—Manager, M. MacIntosh; Underground Manager, Michael MacLeod; Overmen, Robert Lorimer, Dennis Pendergast, Archie MacQueen; Surface Foreman, Norman MacDonald; Chief Engineer, George Petrie.

#### DOMINION NO. 16 COLLIERY.

The slopes of this colliery are sunk on the Lingan seam, about 400 feet east of No. 12 colliery and running parallel with No. 12 slopes. The seam is about 5 feet thick, the coal is hard and pitches about twenty degrees. Direction of true dip north, 33 degrees east. The roof is of shale and clay with alternate bands of sandstone, and the floor is of very hard clay. The seam is gaseous. No spraying system is used and the mine is damp. Length of slope 2,570 feet, 12 feet wide. Method of working is bord-and-pillar; width of rooms, 20 feet; width of pillars, 20 to 35 feet

System of timbering is booms-with-props and props-with-caps; minimum diameter of small end of props, 5 inches.

There were 55,467 pounds of explosives used during the year.

The mine is divided into two sections, east and west.

Number of men employed, 426, 367 in the mine and 59 on the surface. There are also 10 boys employed in the mine.

Ackroyd & Best safety lamps are used, of which there are 536.

Quantity of air in circulation, 110,000 cubic feet a minute.

Water gauge, 1.7 inches. Barometer reading, 29.50 inches. Thermometer reading, 60 degrees.

The fire protection service consists of four fire-kings and water buckets placed in different buildings; one hose-reel, 600 feet. The water is obtained from the same source as that of No. 12.

The pumps are operated by air at a pressure of 75 pounds to the square inch, and discharge 7,000 gallons an hour.

There is one dam in the mine, capacity 200,000 gallons. Power for the pumps is taken from No. 12 colliery, and the water supply is also obtained from that colliery's reservoirs.

*Rails in mine* :—5,329 feet of 60 pound rails, 7,367 feet of 30 pound rails, and 108,346 feet of 18 pound rails.

A trip haulage with a rake of 8 boxes is used, capacity of box being 1,900 pounds, tare 800 pounds. Size of haulage rope, 1 inch.

This mine was visited twelve times during the year.

*Improvements during the year.*

Wash house, wood .....	60 feet x 30 feet
Fan house, brick .....	44 " 14 "
Lamp house, brick .....	34 " 16 "
Warehouse, brick .....	62 " 32 "
Office, brick .....	32 " 22 "
Stables, brick, concrete floor .....	70 " 32 "
Transformer house, brick .....	25 " 17 "
Carpenter-shop	} 1 building .....
Machine-shop	
Blacksmith shop	
	95 " 32 "

*Bankhead.*

Main building, steel .....	160 feet x 38 feet x 48 feet
Screen building, steel .....	50 " 28 " 34 "
Two horizontal screens .....	56 " 5 "
Two picking belts .....	36 " 5 "
Two revolving tipples, electrically driven.	
All bankhead machinery is driven by electricity.	

*Surface machinery* :—One hoisting engine, steam, 14x20 inches. Electric hammer, saw, drill, press and lathes, being equipment of machine shop. One fan 14 feet in diameter, connected to a 50 h. p. motor by a belt drive.

Air shaft, 12 feet x 14 feet and 60 feet deep.

*Underground*:—One pump, 14x8x18 inches, installed at No. 4 landing. Fifteen hundred feet of 8 inch air line, constructed during the year.

There are 46 double miners-houses, 14 single houses, 1 manager's house, and 1 underground manager's house.

*Officers*:—Manager, Malcolm S. Beaton; Underground Manager, J. Henry Oliver; Overmen, Stephen MacNeil, A. R. MacLellan, Wm. Cooke, John A. Roy; Master Mechanic, Melvin Larsen; Assistant Master Mechanic, D. E. MacKay; Surface Foreman, Archie B. MacDonald.

#### DOMINION NO. 17 COLLIERY.

This colliery was abandoned in the year 1898, and was re-opened in the year 1913.

Since the re-opening of the mine a large force of men have been employed pumping, cleaning and retimbering.

This colliery is located in the Victoria district, two miles west of No. 12 colliery, and 1,550 feet from the shore line.

There are three slopes sunk on this seam, which is known as the Victoria seam.

The west slope is down a distance of 2,050 feet. The centre slope is down a distance of 1,540 feet. The east slope is down a distance of 1,940 feet. Pitch of west slope, 16 to 26 degrees. Pitch of east slope, 14 to 18 degrees. Pitch of centre slope, 25 degrees. Course of west slope, N. 45 degrees west. Course of east slope, N. 44 degrees east. Course of centre slope, N. 1 degree east. Cover at face of slope below sea level, 600 feet.

#### *Distances of levels.*

No. 1 east, 1820 feet from east slope or 2045 ft. from centre slope.		
No. 2 east, 2450 feet from east slope or 2290	"	"
No. 3 east, 5850 feet from east slope or 6590	"	"
No. 4 or angle level 12325 ft. east slope or 3425	"	"
No. 5 or angle level 3280 ft. east slope or 4470	"	"
No. 1 west, 2175 feet from west slope or 2800	"	"
No. 2 west, 2475 feet from west slope or 3430	"	"
No. 3 west, 1220 feet from west slope or 2620	"	"

(N. B.) No. 2 east is on the same lift as No. 1 west.

The foregoing table of distances are the old workings, which have all practically fallen in, with the exception of some sections of the levels and slopes, which are in fairly good condition.

There are 75 men employed at this colliery.

*Machinery*:—One 4 stage turbine 14½ inch impeller, 1,430 revolutions a minute, capacity, 400 gallons at 400 feet, head.

One 3-stage turbine 17 inch impellers, 1,430 revolutions a minute, capacity 400 gallons at 400 feet, head.

One single-stage turbine 17¼ inch impellers, 1430 RPM., capacity 400 gallons at 100 feet, head. One-single stage turbine 20 inch 1,430, revolutions, capacity 500 gallons at 200 feet, head.

All the pumps are driven by 100 h. p. induction motors. Power is derived from the plant operating at Waterford Lake, and transformed from 6,600 to 550 volts.

The Ackroyd & Best electrically-lighted safety lamp is in use.

1,500 feet of 60 pound rails have been laid in the east slope. The mine is ventilated by an 8-foot fan producing 60,000 cubic feet of air a minute, driven by a 20 h. p. induction motor. The colliery buildings consist of one 48 by 48 feet compressor-house and fan-house under construction; and a temporary bank, 200 feet long and 50 feet high.

A temporary electric-hoist is also in course of erection.

The dwellings consist of twenty-five workmens' double houses, and two officials' houses are nearly finished.

*Officers*—James Connors, Manager; Walter Johnstone, Under-ground Manager; John Cassidy, Overman.

Appended hereto are the following tables referring to my District:

I. Temperature, &c., at Princess and Florence with result of special tests.

II. Underground timber used, Princess.

III.       "       "       "       Queen.

IV.       "       "       "       Florence.

V.       "       "       "       Scotia.

VI.       "       "       "       Dominion No. 1.

VII.       "       "       "       Dominion No. 12.

VIII.       "       "       "       Dominion No. 14.

IX.       "       "       "       Dominion No. 15.

X.       "       "       "       Dominion No. 16.

XI.       "       "       "       Mackay.

XII.       "       "       "       Colonial.

XIII.       "       "       "       Lloyd.

TABLE I.

*Determination of Temperature, Pressure and Humidity, by G. W. Greenwell, Assistant Mine Superintendent.*

Date	Name of Colliery	Temperature		Diff.	Temperature		Barometer	Humidity		Qty. Air in Cir. per min.	Gals. of Water per min.	
		Dry	Wet		Return	Dry		Intk.	Rtn.		Intake-air	Return air
May 6th....	Princess....	67	55	12	49	48	29 68	46	93	90525	4.2	4.7
May 7th....	Florence ..	68	61	7	53	53	29.40	64	100	49220	3.3	3.1

*Special Tests.*

LOCATION	TEMPERATURE		
	Dry Bulb	Wet Bulb	Diff.
Princess, May 6th, Intake air 350 feet, from pit bottom.....	53	50	3
" " " Return air 1 mile from pit bottom.....	70	62	8
" " " Level landing, S. E. No. 1 landing, 5th pillar	66	63	3
" " " S. W. level in landing-way, near 2nd last proceeding test.....	69	61	8
Florence, May 7th, Intake 500 feet, down travelling road.....	33	33	0
" " " Return, No. 6 landing.....	52	52	0
" " " Return, No. 13 landing.....	56	56	0

TABLE I. —(Continued).

Date	Name of Colliery	Temperature Intake Air		Temperature Return Air		Barometer Sur.	Un'gd.	Humidity Int'ke Re'mn.	Qty Air in Cir. Per Min.	Gals. of Water Per Min.	Gals. of Water Per Min.		
		Dry	Wet Diff.	Dry	Wet Diff.								
July 29...	Princess....	74	67	7	66	63	3	30.04	30.72	66	83	7.7	7.4
July 28...	Florence....	68	64	4	54	53	1	29.72	29.98	78	93	4.03	3.05
Special Tests.													
LOCATION		TEMPERATURE											
		Dry Bulb		Wet Bulb		Diff.		Humidity					
Princess, July 29th—Intake air 350 feet from pit bottom.....		66		63		3		83					
" " Return air 1 mile from pit bottom .....		63½		62		1½		91					
" " Level Landing S. E. No. 1 landing 5th Pillar		65		64		1		94					
" " S. E. Level in landing-way near 2nd last preceding test. ....		64½		63		1½		91					
Florence, July 28th—Intake 500 feet down travelling road .....		58		58		0		100					
" " Return, No. 6 Landing.....		52½		52½		0		100					
" " Return, No. 13 Landing.....		56		56		0		100					

TABLE I.—(Continued).

Date	Name of Colliery	Temperature Intake Air		Temperature Return Air		Barometer Sur. Un'nd.	Humidity Int'ke Re'rn.	Qty. Air in Cir. Per Min. Cu. Ft.	Gals. of Water Per Min. Intake Air	Gals. of Water Per Min. Return Air				
		Dry	Wet Diff.	Dry	Wet Diff.									
1912														
Dec. 30th	Princess...	49	43	6	46	45	1	29.30	30.12	62	93	86730	3.0	4.0
" 31st.	Florence....	42	33	9	50	50	0	29.93	29.32	44	100	47500	.95	2.7
Special Tests.														
LOCATION		TEMPERATURE												
		Dry Bulb		Wet Bulb		Diff.		Humidity						
Dec. 30,	Princess—Intake Air 350 feet pit bottom.....	49			48		1							93
"	" Return air 1 mile from pit bottom.....	64			62		2							88
"	" Level landing S. E. No. 1 leading 5th pillar	66			64		2							88
"	" S. E. Level in landing way near 2nd last preceding test.....	65			62		3							83
Dec. 31,	Florence—Intake 500 feet down travelling road.....	38½			37		1½							95
"	" Return No. 6 Landing..	55			52½		2½							84½
"	" Return No. 13 Landing.....	55½			55½		0							100



TABLE I.—(Continued).

Date	Name of Colliery	Temperature Intake Air		Temperature Intake Air		Barometer		Humidity	Qty. Air in Cir. Per Min. Cu. Ft.	Gals. of Water Per Min. Intake Air.		Gals. of Water Per Min. Return Air.	
		Dry	Wet	Diff.	Dry	Wet	Diff.			Sur.	Un'd.	Int'ke	Re'm.
1912													
Oct. 30th.	Princess.....	33	47	6	57½	56	29.76	30.54	83250	64	93	3.4	5.7
Oct. 31st.	Florence.....	48	46	2	52½	52	29.14	29.40	47200	86	97	2.2	2.8
Special Tests.													
LOCATION													
TEMPERATURE													
Dry Bulb													
Wet Bulb													
Diff.													
Humidity													
Oct. 31st,	Princess, Intake air 350 feet pit bottom.....	52	50	2									86
"	" Return air 1 mile from pit bottom.....	64	61	3									82
"	" Level Landing S. E. No. 1 landing, 5th pillar	63	63	2									88
"	" S. E. Level in landing way near 2nd last preceding test .....	68	65	3									83
"	" Florence, Intake 500 feet down travelling road.....	45	45										100
"	" Return No. 6 landing .....	52½	52	1½									96
"	" Return No. 12 landing.....	55½	55	1½									96

TABLE I.—(Continued).

Date	Name of Colliery	Temperature Intake Air		Temperature Return Air		Barometer Surf. Ung'd.	Humidity		Qty. Air in Cir. Per Min.	Gals. of Water Per Min.		Gals. of Water Per Min.
		Dry	Wet Diff	Dry	Wet Diff		Intk.	Rt'n.		Per Min.	Per Min.	
Aug. 27th.	Princess....	74	64	10	66	30.19	69	88	88250	6.3	7.8	
Aug. 26th.	Florence ...	76	61	5	54	29.66	40	93	48850	4.4	3.07	

Special Tests.

LOCATION		TEMPERATURE			
		Dry Bulb	Wet Bulb	Diff.	Humidity
Princess (Aug. 27th),	Intake air 350 feet, pit bottom.....	65	61	4	78
"	Return air, 1 mile from pit bottom. ....	64	63	1	94
"	Level landing S.E. No. 1 landing, 5th pillar	65	64	1	94
"	S. E. Level in landing way near 2nd last				
	Preceding test .....	66	65	1	94
Florence, Aug. 26—	Intake air 500 feet down travelling road.....	33	51	2	86
"	Return No. 6 landing.....	52½	52½	0	100
"	Return No. 13 landing.....	56	56	0	100

**TABLE II.**

*Timber used underground Princess Colliery.  
Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	4	94273	565638
Booms	6.8	4	84267	561780
	8	5	2013	16104
	10	5	2956	29560
	12	6	725	8700
	14	6	111	1554
	16	6	440	7040
Sleepers		Width of face and thickness		
	4	4x4"	20187	80748

**TABLE III.***Timber used underground Queen Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	4	53219	319314
Booms	6.8	4	25047	166980
	8	6	1094	8752
	10	6	3675	36750
	12	6	616	7392
	16	6	67	1072
Sleepers		Width of face and thickness		
	4	4"x4"	3530	14120

**TABLE IV.***Timber used underground Florence Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	4	100626	603756
Booms	6.8	4	33220	221466
	8	6	562	4496
	10	6	1878	18780
	12	6	1246	14952
	15	6	66	990
	14	6	23	322
	16	6	2026	32416
	18	6	23	414
Sleepers		Width of face and thickness		
	4	4"x4"	37651	150604

**TABLE V.**

*Timber used underground Scotia Colliery.  
Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	4	66141	396846
Booms	6.8	4	23295	155300
	8	6	82	656
	10	6	2130	21300
	12	6	331	3972
	14	6	27	378
	16	6	1580	25280
Sleepers		Width of face and thickness		
	4	4"x4"	27482	109928

TABLE VI.

*Timber used underground Dominion No. 1 Colliery.  
Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	9	6	78544	706896
Booms	14	6	107	1498
	16	6	169	2704
	14	8	263	3682
	17	8	1216	20672
	18	8	152	2736
	20	8	52	1040
Sleepers		Width of face and thickness		
	4	4"x4"	34966	139864
	4	6"x6"	400	1600
	8	6"x6"	57	456

**TABLE VII.***Timber used underground Dominion No. 12 Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	5	2572	15482
	7	5	40339	282373
	8	5	2320	18560
Booms	12	6	93	1116
	13	6	4321	561073
	14	6	214	2996
	16	8	128	2048
Sleepers		Width of face and thickness		
	4	4"x4"	17021	68024
	4	6"x6"	10595	42380
	6	4"x4"	300	1800



TABLE VIII.

*Timber used underground in Dominion No. 14 Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	7	5	13955	97685
	8	5	49858	398864
	9	5	5895	53055
Booms	11	6	1293	14223
	12	6	2770	33240
	13	6	1509	19617
	14	8	3055	42770
	16	8	1641	26256
Sleepers		Width of face and thickness		
	4	4"x4"	40285	161140
	4	6"x6"	767	3068
	6	6"x6"	2691	16146
	8	6"x6"	146	1168

**TABLE IX.**

*Timber used underground Dominion No. 15 Colliery.  
Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	5	29139	174834
	7	5	11581	81067
	8	5	11319	90552
	9	5	2607	23463
Booms	11	6	4960	54560
	12	6	853	10236
	13	6	1503	19539
	14	8	1469	20566
	16	8	2239	35824
Sleepers		Width of face and thickness		
	4	4"x4"	28386	113544
	4.	6"x6"	1696	6784
	6	6"x6"	589	3534

TABLE X.

*Timber used underground Dominion No. 16 Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total lineal feet
Pit props	5	5	3562	18260
	6	5	4360	26160
	7	5	50283	351981
Booms	11	6	5225	57475
	13	6	2840	36920
	14	6	244	3416
	16	8	450	7200
	18	8	176	3168
	20	8	66	1320
Sleepers		Width of face and thickness		
	4	4"x4"	21800	87200
	4	6"x6"	4037	16148

**TABLE XI.***Timber used underground Mackay Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	5	1736	10416
Booms	10	6	88	880
	15	8	80	1200
Sleepers		Width of face and thickness		
.....	.....	.....	.....	.....

**TABLE XII.***Timber used underground Colonial Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	4	5	5645	22580
Sleepers		Width of face and thickness		
.....	.....	.....	.....	.....

**TABLE XIII.***Timber used underground Lloyd Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	4	49346	296076
Booms	6.8	4	27083	180553
	8	5	4744	37952
	10	5	5021	50210
	12	6	1460	17520
	14	6	140	1960
	16	6	723	11568
Sleepers		Width of face and thickness		
	4	4x4"	14941	59764
	5	4x4"	1350	6750

REPORT OF THOMAS BLACKWOOD, *Deputy Inspector.*

Report on the coal mines of Pictou county, for the year ended September 30th, 1913.

I regret to have to report twenty-two accidents, five of which proved fatal.

The fatal accidents were caused by (2) falls of coal or stone; (1) by cage on balance; (1) by falling in shaft; (1) by trip on slope.

## DRUMMOND COLLIERY, WESTVILLE, PICTOU COUNTY.

This colliery is owned and operated by the Intercolonial Coal Mining Company, Limited. Work during the past year has been badly disorganized, due to fire in No. 8 level, south side, in bottom coal. It was discovered on the 23rd of February, and it took three months before it was properly under control and sealed off. The reduction in output was due to this fire, as all the workings to the rise of No. 8 level and in No. 4 slope, had to be walled off. New work is being opened up and the output will soon again be up to the former figure.

There has been no new machinery nor any new buildings erected during the year. The bankheads and approaches are in good condition. This mine is on the Acadia seam, which varies from 16 to 17 feet in thickness and is worked in two sections. There are three districts working, the main deeps Nos. 8, 9, 10 levels and No. 4 slopes. The clay seam and the Scott-pit seams are worked by means of a tunnel from the main seam across the measures into the Scott-pit seam and the Third seam, where the fire-clay is mined. The coal from the Scott-pit, No. 10 and No. 8 levels, and the clay, from the Third seam, are hauled to the surface through No. 2 slope. The men ride to and fro from their work in this slope.

The main-deep coal is hoisted to the surface in No. 1 slope. No. 7 is worked by another slope. It is about 450 feet farther south than No. 1 and No. 2 slopes.

No. 8, No. 10 levels and No. 4 slope, are worked bord-and-pillar. These workings are in the bottom coal, having for their roof the old crushed coal in the upper part of the seam. A part of the second seam, or Scott-pit seam, is being operated by a horizontal tunnel, from No. 9 level on the south side of the main seam

to the second seam. These seams are separated by 230 feet of strata. The balance has been driven and is operated by an engine, which hauls the coal and clay up to the tunnel-landing. They are taken by horses to the bottom of No. 9 landing and hoisted through No. 2 slope to the surface.

The clay seam is operated only when clay is needed at the brick works. There are two places working, employing two miners and two loaders. In the Scott-pit seam, ten rooms are being operated, employing twenty miners. There has not been much development during the year. No. 19 levels and balances are driven to open up the work. No. 19 level south has been driven about 700 feet this year, and is still driving. It has reached farther south than No. 18 level and is still in very good condition. It is now in 2000 feet from the main slope. No. 1 balance has been driven up 440 feet to No. 18 level, four walls are being operated on it, two south and two north. Those going north will connect with two levels which were driven south 260 feet off the air-way. They are known as No. 18½ levels. No. 3 and No. 4 balances are being driven. No. 3 is up 375 feet and No. 4, 140 feet; there are 16 miners employed in this section. In No. 19 north the levels have been driven to the boundary lines between the Intercolonial Company, north, and the Acadia Company, south. The total length of this level from the line of the main slope to the boundary line, is 1000 feet. A balance is being driven, and is up 100 feet. No. 1 balance is now connected to No. 18½ levels, which levels are being continued north, splitting the lift between No. 18 and No. 19 levels. A balance is being driven up to No. 18 level. Ten miners are working in this section, north.

On No. 18 level south, four balances are being operated. No. 1 balance has four walls, with 12 miners employed. No. 2 balance, five walls, 15 miners. No. 3 balance, six walls, 18 miners. No. 4 balance, five walls, 15 miners. In No. 18 level north, the coal is being taken from No. 17½ levels which are being driven north, above the fault that lies between No. 18 and No. 17 levels, to take out the coal between the fault and No. 17 level. This level is driven to the main slope, and as soon as it is through the coal will be taken out through it.

Two levels are being driven and a balance is being put up in No. 17 level. There are six miners in this section. No. 17 level south, is nearly all worked out. The airway is being repaired and one balance operated, having five walls working. There are 15 miners in this section.

No. 17 north level is completed. The airway is being repaired and enlarged. There are two miners in this section. There are in all 91 miners in the south section and 18 miners in the north section of the main seam.

In No. 10 south, the levels have been cleaned for a distance of 160 feet, and preparations are being made to start in the bottom coal. A drift will be turned off the south level and driven north under the main slope, to get into the bottom coal in the north side. The bottom coal will not be worked at present in No. 9 levels; it will be left as a barrier between the first section in the south of No. 8 and the working of No. 10—this coal can be got at any time.

No. 8 level north is being operated; two levels are being driven and are now within 150 feet of the Intercolonial Company's north boundary and the Acadia Coal Company's south boundary. These levels are in 1350 feet, being driven about 400 feet last year. No. 1 balance has six bords working, employing twelve miners. No. 2 balance and backhead are being driven—four miners; No. 3 balance and backhead—four miners. Two levels, employing four miners, and two men brushing and widening the airway.

Nothing is being done in No. 6, 7, 8 south, since the fire, except cleaning out the low level in No. 6, putting in chocks and retimbering along the airway between No. 8 and No. 6 levels.

No. 10 and No. 11 lifts only, are being operated in No. 4 slope, north side. In No. 10 level, north, two places are being driven toward No. 9, for air, to connect to a level which is being driven along the top of No. 10 lift.

No. 11 levels are being put in order. These levels have been standing idle for a long time, one balance is working in this level. It has five bords, three going south and three going north. There are 16 miners in this section.

A start has again been made on the south side of No. 4 slope. Two levels, No. 9½, and 1 balance and backhead are being driven—this level is now in 260 feet from the slope. The balance is up 90 feet. No. 8½ levels south are in 500 feet from the slope, a balance has been driven and four bords are operated on it. There are 12 miners in this section. A level has been started in No. 7 south, off the main slope about 280 feet above the main-slope bottom, so as to get into some pillars which have been left in. The level is now in 550 feet, and a balance is being driven up to the pillars, 80 feet. Large quantities of coal will be recovered in this section. There are now six miners employed.



Trip haulage is used on the main seam slope, 16 boxes to a trip. This slope has double track, No. 2 and No. 4 slopes have single tracks, 8 boxes to a trip. Horse haulage is used on the levels; the balances and jigs are self-acting. The travelling way in the main seam is in good condition, except between No. 17 and No. 18; from No. 18 to No. 19 it is crushed some; but it is being repaired.

No. 4 travelling way is in fair condition. Some places are getting narrow. These are being widened and retimbered from No. 8 down. The travelling-ways of these collieries are difficult to keep in order.

A fan 20 feet 6 inches in diameter, rope driven, w. g. 6½ inches, produces the ventilation. The average quantity a minute, in the main seam was 42,500 cubic feet; in No. 4 slope 26,500 cubic feet. The air goes in one current to the bottom where it is split, one split going north and one south. The air is distributed to suit each section, by regulators. There is a separate return for each section from the bottom up to No. 6 level where it is over-casted into one return airway, and to the upcast at No. 5 level.

There are 540 employees underground and 424 on the surface.

There are 576 safety-lamps in use and 160 in reserve.

There were 8684 pounds of explosives and 14,447 detonators used.

*Officers:*—James Floyd, superintendent; Alex. Sutherland, underground manager, main seam; James Henderson, overman, main seam; Robert Henderson, overman, main seam; Norman McLeod, back overman, main seam; Thomas Stewart, night examiner, main seam; T. J. Gray, underground manager, No. 8, 9, 10 levels; James Smith, overman, No. 8 level; William Wadden, overman, No. 9 level; David Paton, night overman, No. 9 level; Donald McNeil, underground manager, No. 4 slope; W. W. Gray, Jr., overman, No. 4 slope; Thomas McEwan, overman, No. 4 slope; John Brown, night examiner, No. 4 slope; Thomas Floyd, surface foreman, No. 4 slope; James Saunders, mechanical superintendent.

The mine is damp on the haulage ways and roads, it is somewhat dusty at the working faces—no sprinkling is done.

*Barometric Pressures and Temperatures.*

MONTHS.	BAROMETER.	THERMOMETER.
October	29.50 inches	70 degrees
November	29.60 "	69 "
December	29.68 "	68 "
January	29.96 "	66 "
February	29.65 "	65 "
March	29.20 "	66 "
April	29.60 "	68 "
May	29.30 "	68 "
June	29.64 "	68 "
July	29.50 "	71 "
August	29.54 "	71 "
September	29.62 "	71 "

*Fire Protection Service.*

There are four hydrants connected with the town water supply, and two large reservoirs which can be connected to feed pumps, in a few minutes. There are 700 feet of 2½-inch hose. The colliery buildings are equipped with patent fire-extinguishers.

*Rails in Mine.*

42,658 feet of 32-lb. rails; 43,206 feet of 18-lb. rails; 10,820 feet of iron 2½ by ⅝-inch rails.

The output for the year was 197,204 tons of coal, and 3,733 tons of fire clay.

## ALLAN-SHAFTS, STELLARTON.

(Owned and operated by the Acadia Coal Company, Limited.)

This mine is operated by two vertical shafts, No. 1 and No. 2, No. 1 shaft is, to the Cage-pit seam, 1440 feet, and to the Ford seam, 1200 feet. It is 32 by 11 feet inside of timbers, with two hoistways and one air compartment. No. 2 shaft is 350 feet north-east of No. 1. It is the same size, and is to the Cage-pit seam, 962 feet. The mine had some broken time, due to scarcity of railway cars, but the output was larger than the previous year. A locomotive shed 67 by 34 by 17 feet post has been built. The surface yard has been extended, with new sidings and new timber yards.

The store-house, 70 by 51 by 15 feet post, of brick, has been built. It is the distributing point for all stores used at the company's other collieries. A new oil-house has been erected, for all

oils of different kinds required at the company's mines. A new brick engine-house, 50 by 40 by 27 feet post, is completed at No. 1 shaft, and a new engine has been installed. This engine was made in Belgium. The drums have steel angles and plates with cast iron sides. They can be used independently by means of clutches. They are conical, the larger diameter 13 feet 7 inches, and the smaller 9 feet 6 inches. A new pulley-head frame with 16 feet pulleys has been erected. The new cages have four decks, carrying four boxes, each of one ton capacity. These cages are hoisted by ropes of two inches diameter. Chairs for the cages have been put in at the surface, at the 962 bottom, and at the 1200 bottom. It is also intended to have them put in at the 500 bottom. A temporary wash-house, 22 by 20 feet, has been built under the west end of No. 1 bankhead. It has accommodation for about 40 men.

The company purpose to build a larger and more modern wash-house and a larger lamp-house in the near future. The new steel bankheads at No. 1 shaft, are in operation.

All coal and rock from the cage level in the northwest and southwest level and from the 476-foot tunnel, are hoisted in No. 2 shaft, and taken to No. 1 bankhead. In the near future, all the output will be hoisted from No. 2 shaft, as the tunnel which was driven from No. 2 shaft, in to No. 1 shaft in the 476 feet level, is now ready and the coal will be run through it to No. 1 bottom. This bottom has all been concreted along both sides of the tunnel, which is reinforced with steel girders and concrete, for a distance of 150 feet in from the bottom.

The water has been drawn off the old Ford-pit workings. The northwest Ford-seam levels, driven toward the Will's slants, were last year driven in 160 feet. During the driving of these levels, bore holes were kept in advance from 45 to 60 feet, with flank holes. At this point, boring was begun for the water. Thirteen holes were bored, 120 feet, five holes missed, and eight struck water. These holes were  $1\frac{5}{8}$  inches in diameter, and were enlarged to two inches, each hole having a pipe and valve on it. A four-inch pipe line was run in from the lodgments to the borehole, and eight holes were connected to it. Similar work was done on the northwest Cage-pit-seam-level, which was driven in through a down-throw fault, to the Ford-pit seam. After driving levels in 100 feet, a number of holes were bored up to tap the water. A three-inch line of pipe was connected to the hole, but proved too small. A four-inch line was then connected, which soon ran the water off.

The electric pump in No. 1 shaft, handles all the water, in about ten hours, besides pumping the natural drainage of both shafts.

The method to approach the Ford-pit working, has not yet been decided upon. It is the intention, however, to get in as soon as possible, and wall off the top of the Will's slant, and the Muir slants, and leave a barrier of 200 feet between the Ford-pit working and the Allan-shaft workings.

The work in this colliery is chiefly in the Ford-seam; some work is being done in the Cage-pit seam, in both shafts, for ventilation.

In No. 1 shaft, some of the development work has been done, driving levels, tunnels and balances. In the east level, Ford-seam, a tunnel was driven through a fault, and the coal regained. It has been driven about 300 feet, as the counter level has not been put through the fault yet, the main level cannot be driven farther until the ventilation is carried forward. The coal in this level is good, but is nearly vertical. The level is being driven along the rim of the north side of the basin. The northeast level and counter-level are being driven in good coal. They are following around the rim at the south side of the basin. No. 3 balance and back-head are being driven up to the south side of the basin, and are now up 200 feet. Four bords are being operated in this balance, two east and two west.

No. 1 balance and backhead are being driven up 60 feet, where two places going east have been started to connect to the tunnel driven across the measures from No. 2 shaft, for ventilation, to the top of No. 1 balance in No. 1 shaft. There are 28 miners in this section of No. 1 shaft.

On the west side of No. 1, two slants are being driven by an engine placed at the bottom and a bull-wheel at the top. These slants are double-shifted and are up 800 feet.

One bord is being driven west on the south side of the basin. There is one chute operated on this side of the mine, and four bords are being worked on the north side of the basin. A level is driving west in the Cage-pit seam towards the connection that was made between No. 1 and No. 2 shaft. There are 22 miners and two loaders in this district. Two levels are being driven in No. 2 shaft, in the northwest side of the Ford-pit seam, in the upper part of the coal. These levels are supposed to cross over the top of the Will's-slant, as they were driven, or supposed to

have been driven, in the bottom part of the seam. Two levels are also being driven in a similar manner, in the northeast Cage-level, across the Muir slant, in the top part of the seam. In the incline-level, two pillars are being robbed and one pillar is being drawn, in the balance on the same level. The pillars all having been drawn out to the backhead, on the west side of  $1\frac{1}{2}$  balance, all the coal is now brought down this balance from the transfer-balance. The balances and backhead are still being driven and are up now more than 1000 feet to the rise, from the incline-level. Preparations are being made to cut off this up-hill haul, by cutting off the transfer balance at No. 5 bord, and taking the coal from it and from the bords above No. 5, out by the 476-foot tunnel. A tunnel is also being driven through a fault on the No. 5 bord on the west side of the balance, to regain the coal. There are eight bords and backheads working on this transfer balance. Two pillars are being drawn in No. 33 chute. This section employs 62 miners. In the 500 feet tunnel-level west, two levels were driven in 400 feet, where a fault was met; the upper level was continued through this fault, for 80 feet when the coal was regained. Two balances and backheads are being driven from this level, they are each up 160 feet and are still going. The sinking is being driven for ventilation, in the Cage-pit seam, to connect to a drift, which was driven up from the Cage-pit level in the 962-feet level. It is nearly connected. There are 22 miners in this section, of 500 level west. In the 500-level east, off tunnel, No. 51 chute is still being continued and is up more than 1200 feet from the 962 feet level. At the top of this chute, the coal is nearly flat. The balance and backheads have been turned into bords. There are ten places working in this chute, all the coal being taken out the 500-feet level to No. 1 bottom. In the 51 chute near the bottom, two pillars are being robbed, this coal is being taken out the 962-feet level. A sinking was also driven in the Cage-seam, on this side and connected to the Cage-pit working from the 962-feet level, for air. The east level was driven about 200 feet, the coal is not as good as in other parts of the seam.

Operations in this level are discontinued for the present as the ventilation is not sufficient, to drive any farther. This east section employs 19 miners. The rock-tunnel off this level, which was driven across the measures, south, to strike the top of No. 1 balance, in No. 1 shaft, in the 1200-feet level, has been driven about 800 feet. Operations had to be discontinued here also, as the ventilation is too weak and the place was giving off a large quantity of gas. Two places are being driven from the top of No. 1 balance in

the 1200-level, next to it. Another tunnel has been driven off the Cage-pit-seam level through the fault on the northwest side, to regain the Cage-seam. At 320 feet, the coal was regained and proved to be good; work has been stopped for the present, until a counter-tunnel is driven for air.

Some prospecting has been done in the old workings, towards the outcrop of the Ford-seam, to locate the safest place to make an entrance into the old workings, in the bottom of the seam; but owing to the large amount of damp in it, sometimes, it was considered not safe to continue the work.

The old Stair-pit has been opened and the timber repaired. A partition of canvas has been carried down one side for ventilation, and the steam-crane is used for hoisting. A head-frame and pulleys have been erected: the bottom is now being cleaned out, and the prospecting will be continued from the bottom of this pit.

*Employees Underground.*

<i>No. 1 Shaft.</i>		<i>No. 2 Shaft.</i>	
Southwest.	Southeast.	Northwest.	Southeast.
28 miners.	22 miners.	74 miners.	19 miners.
	2 loaders.		4 rock-miners.
	2 rock-miners.		

The travelling-ways are in good condition. The haulage is all done in the levels by horses, all the other hauling is done by counter-balance. The ventilation in this colliery is good, there is an average of 65,000 cubic feet a minute, in circulation. It is produced by a fan, w. g.  $3\frac{1}{2}$  inches. The fan drift is 45 feet long, 60 feet area, the fan-shaft is 10 by 6 feet.

No. 1 shaft is the down-cast. The air is split at the bottom, one branch going southeast and one northwest. It is carried along the workings and returns to No. 2 shaft. The top of this shaft is covered by doors, these doors are hoisted and lowered into position by the cages. There are 279 safety lamps, self-lighters, in use.

At the 1200-feet bottom in No. 1 shaft, a new pump-house of concrete has been built. It is 12 by 9 by 9 feet high. An electric centrifugal-pump is to be placed here, to pump the water to the 962-feet bottom.

*Officers:*—Malcolm Blue, manager; Thomas Sculley, overman; Edward O'Reilly, night overman; Timothy McMullin, night examiner; David Reynolds, mechanical foreman; R. Campbell, bank foreman.

*Barometric Pressures and Temperatures.*

MONTHS.	BAROMETER.	THERMOMETER.
October	29.11 inches	55 degrees
November	29.40 "	56 "
December	29.52 "	47 "
January	29.15 "	42 "
February	29.08 "	40 "
March	29.75 "	45 "
April	29.23 "	44 "
May	29.62 "	49 "
June	29.51 "	52 "
July	29.55 "	55 "
August	29.53 "	56 "
September	29.64 "	56 "

There are 286 men in the mine, and 186 on the surface.

Rails in mine:—36,241 feet 18-lb. rails; 106,411 feet 12-lb. rails.

There were used last year 39,145 lbs. explosives, and 58,527 detonators.

## ACADIA MINES, WESTVILLE, PICTOU COUNTY.

(Owned and operated by the Acadia Coal Company, Limited.)

This mine has worked very steadily during the last year, with an increased output. No improvements have been made during the year, on the surface. The plant has been kept in good condition.

This mine is operated by a slope, over 5000 feet on the angle of dip 49 degrees and 49 minutes east. The seam is 16 feet deep, good coal. The slope is ten feet wide, 6½ feet high, timbered with sets down to No. 8 level; from No. 8 down it is timbered with chocks on each side, with booms from chock to chock. It has a double track to No. 7 level; from there down to No. 12 the track has three rails. Much repair work has been done in the travelling-slope, during the year. It has been used as a riding-slope for the men working in No. 5 and No. 6 levels, and down to No. 12 levels. It is crushed in places since operations were commenced in bottom coal in No. 5 and No. 6 levels; repairs are constantly being made. The crushing has been causing trouble, and the pump-house in No. 6 level, and the pump is constantly being repaired. This mine is worked in four sections. It was considered advisable to leave the

coal in No. 13 level, as it can be taken out any time by the proposed shaft that the company purpose to put down in the near future. More coal will be reached by this shaft, than has been taken out of the Acadia-seam since it was opened. It is to be hoped that the company will soon commence operations in this shaft.

Work has been stopped in No. 13 lift, north, and south, during the year, but this coal can also be reached by the proposed new shaft.

Three balances are being worked in No. 12 level, south. Four walls are working on No. 3 balance, above the fault between No. 11 and No. 12 levels, two south and two north. The balances going south connect to the walls driven from No. 4 north. This balance employs 12 miners. In No. 2 balance, four walls are working, above the fault, two south and two north. The south walls connect to the walls driven north from No. 3. There are 12 miners in this balance. No. 1 balance has been driven up to No. 11 level, four walls are working, employing 12 miners. No. 11 lift was worked out during the last year, and a return airway driven up to No. 10 level. In about a year, the places that are developed in No. 12, will be worked out. In No. 6 level, south, in the bottom coal, two levels are being driven south, and they are in about 1100 feet. The coal looks good, seven feet high. One balance and backhead are being driven, toward No. 5. An airway is being driven to the main return. There are ten miners on this side.

On No. 6 level, north, levels are being driven toward the Black-diamond areas, which belong to the same company. These levels are in 1200 feet, and are still going. This side will be more difficult to work as the seam toward the north gets steeper, it now pitches about 35 degrees. It is difficult to keep the timber in order. Two balances are being driven toward No. 5 level, and a backhead and an airway are being driven toward No. 5 level, and backhead and airway are being driven below the two levels. This section employs 10 miners.

In No. 5 level, south, two levels are being driven and are in 1000 feet. Two balances and backheads are driving toward No. 4 level. This section employs 10 miners.

No. 5 levels, north, are being driven and are in about 1200 feet. The same difficulty in keeping the timber in order, is met with here, as in No. 6. Two balances and backheads are driving on this side, towards No. 4 levels. This section employs 12 miners.



No. 4 levels, north and south, have been turned off to the north levels and are in 500 feet. A tunnel has been turned off this level and driven south under the main slope, and under the travelling slope. The south levels have been started and are in 250 feet, double-shifted. This section employs 16 miners.

The travelling-slope is in fairly good condition, at much cost, due to crushing. It has been retimbered several times, and is still being timbered. It is used as a riding slope, for the men in No. 4, No. 5, and No. 6 levels. It is also used daily to run the riding-shift to No. 10 level.

There are 43,000 cubic feet of air in circulation a minute; 18,000 feet going to No. 11, and 25,000 feet to No. 6, which is split north and south, and enters the main return airway at No. 4 level, and on to the fan-drift.

The mine is damp, except at the working faces, in No. 12 lift. There are 240 self-lighting safety-lamps in use.

*Officers:*—James Brown, manager; George Burton, underground manager; Archibald Black, overman; D. Henderson, overman, No. 5 and 6 levels; Philip Kennedy, back overman; Michael McNeil, night examiner; James Ross, surface foreman; K. Sutherland, mechanical foreman.

There are 237 men and boys employed underground, and 73 on the surface.

*Barometric Pressures and Temperatures.*

MONTH.	BAROMETER.		THERMOMETER.	
	Underground.	Surface.	Underground.	
Otober	31.82 inches	29.81 inches	72 degrees	
November	32.12 "	29.25 "	70 "	
December	31.40 "	29.22 "	70 "	
January	32.80 "	30.50 "	68 "	
February	31.71 "	29.69 "	70 "	
March	32.00 "	29.80 "	68 "	
April	31.90 "	29.70 "	68 "	
May	32.00 "	29.90 "	69 "	
June	32.00 "	29.95 "	72 "	
July	31.40 "	29.59 "	73 "	
August	32.07 "	30.02 "	73 "	
September	32.26 "	30.20 "	73 "	

The barometric readings in the mine were taken at No. 12 level,—the temperatures were taken in the return airway to the rise of the workings.

*Fire Protection Service.*

In addition to the water which is available from a large reservoir, having a capacity of 4,500,000 gallons, and a large fire pump, 10 by 12½ by 6 inches, and 600 feet of 2½-inch hose, the town water supply is connected at the colliery.

There were used last year, 10,692 lbs. explosives, and 18,933 detonators—explosives are used in No. 4, No. 5, and No. 6 levels only.

Rails in mine:—6842 feet of 32-lb.; 9578 feet of 28-lb.; 5785 feet of 24-lb.; 2200 feet of 22-lb.; 35,700 feet of 18-lb.; 84,500 feet of 12-lb.; 4000 feet of 2½ by ⅝-iron.

*ALBION MINES, STELLARTON, PICTOU COUNTY.*

(Owned and operated by the Acadia Coal Company, Limited.)

This mine has worked fairly steady, during the year, except about four weeks idle on account of fire, during the latter part of June and the first part of July. The fire broke out on the 20th day of June and was extinguished on the 6th day of July.

Operations were commenced in some sections of the mine, on the 7th of July, but work was not resumed in full, until about the 21st of July. There has been an increased output during the last year. The new steel bankhead did not give very good satisfaction for some time. During the winter an additional number of men were required on the bankhead to handle the output, as the floor of the bankhouse was too flat—the boxes when uncoupled would not run as was expected. It was found necessary to raise the brow of the bankhead 8 inches, and grade back toward the grab-haulage—it now works well. There was trouble for some time, too, with the screening and picking-table machinery, but this is overcome and everything is now working satisfactorily. The larger boxes have not yet been put in, as the mine is not ready for them. The old boxes are still being used. One new turban pump-house, of brick, 12 by 8 feet, having deep concrete foundations, has been built.

The bankhead and the overground plant, is in good condition, for handling much more than the present output. The new electric fan-house was completed and the fan started during the last year. The fan-house is of brick with terracotta partitions. The fan is giving satisfaction, the only objection I have to it, is that its speed cannot be regulated. In cases of emergency it must either go full speed or stop. It is reversible by means of a regulation door.

The new fan-house at the McGregor slope, has been completed, but the electric-fan has not been started yet. A new electric pump for the compressor, has been placed at the reservoir, it is coupled to the town water-service, and pumps water into a large tank, recently erected at the company's new houses.

The new wash-house at the colliery has been opened, it has baths and tubs. Instead of lockers for the workmen's clothes, there are long wires reaching from the floor to near the roof. The workmen when they change their clothes, attach them to the wire, and run them up to the roof. A line of heaters run around the building to dry the clothes. Each man has a lock for his pulley, and it is a great convenience for the workmen.

There are five seams of coal being worked in this mine—four seams in the Third-seam slope and one in the McGregor slope. In the Third-seam slope, there are the Ford-pit seam, and the Four-foot seam. The latter immediately overlies the Cage-pit seam, the strata between varies from 4 to 8 feet. The Cage-pit seam is 12 feet thick. The Four-foot seam, is at present, worked in conjunction with the Cage-seam. In pillar drawing, the Cage-pit pillars are drawn, and when a fall takes place in the pillar, the Four-foot seam falls, and owing to the steep pitch this coal from the Four-foot seam, runs down to the side of the roadway, where it is loaded. By this system, a greater percentage of the coal is got, than by working the two seams separately. Worked separately, it was found that the top coal in the Cage-seam, was nearly all lost; because when the pillar crushed, the stone between the two seams came down on top of it, as well as the fallen roof of the Four-foot seam. When the Four-foot seam was worked in advance of the Cage-pit seam, the mining was harder, and the output for each man was not more than one-half what it is under the present system.

The Third-seam is 11 feet thick, from 8 to 9 feet is good coal. The McGregor seam is 10 feet thick, and is worked by a slope separate from the others, about 450 feet southwest.

The Flemming seam is worked pillar-and-bord, bords 12 feet wide, 9 feet high; pillars 50 feet. All the seams in the Third-seam slope, are worked bord-and-pillar. The coal from the Ford-seam, Four-foot seam, Cage-pit seam and Third seam, is hoisted through the Third-seam slope, from the No. 5 level. The coal mined in the cage-pit seam, in the iron-door level, is delivered by the counter-balance from No. 3 level to No. 4 level, where it is hauled by horses to the top of a staple-shaft, from the Third seam to the Cage seam, where it is lowered by counter-balance.

The full boxes and cage take the balance weight up, in turn the balance weight takes up the empty box. The full boxes are hauled by horses, to the main bottom of the Third seam, and from there to the surface. The Ford-pit-seam coal is hauled to the same bottom, through horizontal tunnels, driven across the measures from one seam to the other. In No. 5 level, of the Third seam, northwest, about 2000 feet from the main bottom, a tunnel was driven across the measures, from No. 5 level, Third seam, to No. 5 level in the Cage-pit seam, and a tunnel was driven from No. 5 level in the Cage seam to the Ford-pit seam. By these tunnels, the coal from these seams is hauled by horses to the Third-seam bottom. Tunnels of a similar kind have been driven off No. 6 levels, northwest, from the Third-seam to the Cage-pit seam, and is continued into the Third-seam, preparing for another lift in the main slope. Another staple-shaft is being sunk from the Third-seam to the Cage-pit seam on the southeast side of No. 6 level, to take the Cage-pit coal down to No. 6 lift.

All the coal in each seam will be conveyed to this bottom, and from there raised to the surface. As soon as this is ready, one-ton boxes will be put in.

These seams are opened by a slope, dipping about 23 degrees across the measures. The slope has reached the basin. From the surface the face of the main deep, is 5000 feet—to No. 5 level, 2800 feet, and to No. 6 level, 3600 feet. This slope is 11 by 6½ feet, timbered by sets and booms, and props. It is in good condition. Trip-haulage is used, delivering each hoist, 16 boxes. The slope is double-tracked, rope 2 inches in diameter. The development work done in the Ford-seam during last year, was in No. 6 level. On the east level two slants have been driven, 900 feet, along the edge of the north side of the basin. These slants are still going. No. 1 slant is now against the fault, which is a down-throw of considerable size. Work is being continued, trying to get through it. There are also two cross-cuts being driven, toward the south. One of these cross-cuts, cuts off the bords that were driven off the sinking, from No. 5 level to No. 6 level. A balance is to be driven off this cross-cut toward No. 5 level, to where a barrier pillar of 75 feet is to be left between these workings and the workings of the old Dalhousie pit. Bore-holes are to be put up every hundred feet to insure a uniform thickness of barrier-pillar. On the northwest side of No. 6 level, Ford-seam, a balance is to be driven up to No. 5 level. Bords have been driven in four of them, to where the coal is not good.

They are now driving into the top part of the seam, above the umbrella roof, where bords are to be drawn, while the coal remains good. The pillars are to be drawn in the top, first, and then in the bottom. There will be five bords and a level, operating. The low level, northwest, has been driven 200 feet in the bad coal, prospecting. So far there is not much change for the better.

In No. 5 level, Ford-pit seam, west side, a balance was driven, and five bords worked, in to within 75 feet of Poole's slant; they were driven 500 feet. The pillars are now being drawn. This section employed 42 miners.

No work is being done in the Four-feet seam, at present, except what is worked in conjunction with the Cage seam in the northwest of No. 6 level. In No. 4 level, two balances are operated. In No. 3 balance, four pillars are being drawn and a level being driven. In No. 2 balance, five pillars are being drawn. No. 1 balance and backhead are being driven up to No. 3 level, and a bord driven to within 50 feet of No. 2. This 50 feet is to be left as a barrier between No. 1 and No. 2 balances, in case of fire in the old works. This section employs 33 miners.

On the southeast side of No. 4 level, an old balance is being cleaned up by means of a little engine which is placed above No. 4 level. This balance was driven before the Ford-pit explosion, from the iron-door tunnel, leading into the old Ford-pit. A level is driving southeast from No. 5 level, to connect to the tunnel-level, and will soon be through. The management propose to get into the old iron-door tunnel, to wall it off, to close all connection with the Ford-pit old workings. There are 6 miners in this section. In No. 5 level, Third-seam, northwest side, three balances are working. In No. 1 balance, six places are being worked, robbing pillars. In three of them, going northwest, three bords are being driven southeast off the balance. In No. 2 balance five pillars on the northeast side of the balance, are being robbed. The bords have all been driven and the pillars are being robbed. Four pillars are being robbed in No. 3 balance. The reason these pillars are being robbed instead of being drawn, is that they are directly under the fire in the Cage-pit seam—by robbing them in this manner, about 70 per cent. is taken out, leaving in the stumps as a support.

In No. 1 balance, all the pillars will be extracted, as they are clear of the fire district, in the upper seam. There are 30 miners in this section.

Two balances are being worked in the southeast side of No. 5 level in the Third-seam. In No. 2 balance, 8 pillars and the level-

pillar are being drawn. In No. 1 balance, 6 bords are driving east. This district employs 23 miners.

Two eight-inch bore-holes were put down from the Third-seam to the McGregor-seam; one for the purpose of conveying water from the upper seams to the McGregor pump. This bore-hole is about 300 feet from the dip of No. 4 level. The other bore-hole was put down in No. 6 low level to convey compressed air from the McGregor slope, up the bore-hole, where it is distributed to all the other sections in the other seams requiring it.

*McGregor Seam.*

This seam is operated by a slope and has worked steadily during the last year, with an output of 400 tons a day. The slope is down to the basin. It is about 5000 feet in length, 10 by 6 feet inside of timber. It is timbered with booms and props and is in good condition. It is double-tracked, one track is used for hoisting, the other is used for a balance-weight against the hoisting, which is direct trip-haulage. There are twelve one-ton boxes in each trip, which when landing on the bank, runs by gravity around a curve to the bottom of the incline trestle, where it is carried by a haulage, up the incline, about 350 feet to the Third-seam bank, where the coal is screened. All the machinery in this mine is run by electricity. The work, chiefly pillar drawing, is confined in No. 4 and No. 5 levels. The system is bord-and-pillar. No. 1 balance, in No. 4 level northwest, is being cleaned and timbered, preparing it for work. No. 2 balance has 9 pillars and the level-pillar working. This section employs 22 miners and one loader.

No. 1 balance and backhead in No. 5 level northwest, are being driven and are up 200 feet. One bord is working on No. 2 balance, other bords are being cleaned and timbered ready for operations. No. 3 balance has 7 pillars, and a level pillar being drawn. Five of these pillars and the level-pillar are double-shifted. This section employs 40 miners and one loader.

In No. 5 level, southeast, two bords are working, and one balance and backhead are being driven, to No. 4 level, to take out a block of coal which has left some time ago. There are eight miners and four loaders in this level.

There are 65,000 cubic feet of air a minute, in circulation, produced by a fan, 10 by 5 feet, driven by a 24 by 24 engine, directly connected. The air is carried in one volume, where it is split, one split going northwest and one going southwest. It is then distributed by regulators. Each side has a separate return to the fan.

*Officers*:—John Higson, superintendent; Daniel Gillis, manager; Sutherland McDougal, underground manager; James McDonald, overman. *McGregor Seam*:—Samuel Moss, underground manager; William McDonald, overman; John Dunbar, night overman; Lewis Campbell, surface foreman; George Conway, mechanical foreman.

*Barometric Pressures and Temperatures.*

MONTHS.	BAROMETER.	THERMOMETER.
October	29.01 inches	61 degrees
November	29.58 “	61 “
December	29.28 “	60 “
January	30.04 “	50 “
February	29.46 “	48 “
March	30.12 “	45 “
April	29.45 “	50 “
May	29.43 “	52 “
June	29.40 “	56 “
July	29.10 “	62 “
August	20.26 “	65 “
September	29.40 “	67 “

These readings were taken in the main return-airway near the fan-drift, to the rise of all the workings.

*Rails in Third-seam*:—65,590 feet of 18-lb.; 29,950 feet of 12-lb.; 14,820 feet of 30-lb. *McGregor Slope*:—22,430 feet 18-lb.; 12,800 feet 12-lb.

There were 38,191 lbs. of explosives, and 59,979 detonators used during the year.

*Employees*:—underground: miners, 202; loaders, 26, shift-men, 158; boys, 20; total 406. Surface: skilled laborers, 45; unskilled laborers, 99; boys, 13; total, 157.

VALE COLLIRY, THORBURN, PICTOU COUNTY.

(Owned and operated by the Acadia Coal Company, Limited).

This mine has worked steadily during the year, and has an increased output over the previous year. There have been no changes in the surface plant, except the placing of a boiler. No new colliery buildings have been erected. The plant is in good condition.

The slope is in good condition and well timbered, and the travelling-ways are in good order, except in some places that are low, varying with the height of the coal.

Much trouble has been met with, in the steam-pipe slope, owing to the excessive heat, the roof has all fallen in on top of the steam pipes, covering them in some places to a considerable depth, making it almost impossible for men to go in to make repairs on the line. Steam-leakage was so great, that it was difficult to get power to run the pump. The water was going down into the old works on the east side, and rapidly filling them up; it only seemed a question of a short time, until the other side of the mine would begin to fill. After some negotiations, the management was brought to see the seriousness of the situation. The company propose now, to put in a new electric pump, and take the power from the Allan-shaft. A place for the pump is now being prepared, and dams for lodgment room, are being made. As soon as this change is made, conditions will be improved.

Not much development work has been done in the mine this last year, as the system of working is now all long-wall, and the development work is only kept sufficient distance in advance of the ordinary work, to allow a new incline being started up when the old one is in its distance; the distance between each incline is 300 feet. When the inclines are up, their roadways are cut off, and the work continued on in another incline, etc., until the walls are on to the new incline. These inclines are self-acting. The ballast-box takes the empty box up, and the full box takes the ballast box up. By using the boxes instead of cages, not so much height is required, and saves expense in brushing. The only new development work last year, was a new level, started off the main slope about 200 feet above the No. 3 level on the west side. This level is being driven along the top of the long-wall work, which was started 20 years ago, and which did not prove a success. As there is a large body of unworked coal in this section, it was thought advisable to go in this way for it. This level has now been driven west, 1200 feet, one balance is being driven and is up 150 feet. Three bords have been turned off and are in about 40 feet. At 50 feet, they are to be opened up, long-wall. There are ten miners and four loaders in this section.

In No. 4 level, north, three pillars are being drawn, employing five miners and one loader. In No. 4 level, west, No. 7 balance has been driven for 450 feet, with nine walls working on it. No. 8 balance is started, and as soon as the walls in No. 7 balance get in a distance of 300 feet, they will be continued, from No. 8 balance, cutting off the roadway from No. 7 balance. This level was cut 200 feet last year. There are 20 miners and two loaders in this section.



In No. 6 level, east of angle deep, two balances are being worked and four pillars are being drawn. Six miners and two loaders are employed in this section.

In No. 7 level, east of angle deep, No. 2 balance and backhead have been driven down toward No. 8, prospecting the quality of the coal. At 325 feet, the coal was found not to improve, having about 18 inches of splint in the bottom, and 2 feet of good coal in the top part of the seam. The coal appears to be about the same, over all the east side of this section. Operations are still being continued—one pillar being drawn. There are four miners and two loaders employed in this section.

In No. 7 level, west of angle-deep, three inclines are being worked, and a level is being driven. No. 6 incline has four walls working. Eight miners are employed in this section.

A return airway has been driven, to No. 4 level, in this balance, which assists the ventilation all through this district.

No. 7 incline, on this level, has five walls working. There are 10 miners employed.

No. 8 incline, has five walls working. The level has been driven 400 feet this last year. There are 10 miners employed in this section.

In No. 8 level, west angle-deep, No. 8 incline has six walls working. The level is being driven, and went 300 feet last year. There are 24 miners employed in this section.

There are 36,000 cubic feet of air in circulation a minute. The air is carried to the main bottom, in one current, where it is split east and west. After sweeping the workings it passes into the main return, No. 4 level.

There is little gas in this mine—it is fairly damp and needs no sprinkling. The general conditions are satisfactory.

There are 265 men and boys underground, and 67 on the surface.

*Officers:*—R. H. Gray, manager; H. H. Cameron, underground manager; J. H. McNeil, overman; Neil MacKay, back overman; James D. MacKay, night examiner; George W. Fraser, surface foreman; W. W. Fraser, mechanical foreman.

*Barometric Pressures and Temperatures.*

MONTHS.	BAROMETER.	THERMOMETER.
October	30.30 inches	54 degrees
November	29.80 “	54 “
December	30.30 “	53 “
January	30.28 “	51 “
February	29.80 “	52 “
March	20.30 “	54 “
April	30.00 “	53 “
May	30.00 “	54 “
June	30.00 “	55 “
July	20.59 “	56 “
August	30.03 “	54 “
September	30.20 “	53 “

These readings were taken in the return airway at the rise of the workings.

*Fire Protection Service-*

There is 1 pump 8 by 12 by 5 inches, with 350 feet of fire hose. The reservoir contains about 3,000,000 gallons of water.

13,240 lbs. of explosives and 29,185 detonators were used last year.

*Rails in mine:*—52,780 feet of 32-lb.; 62,752 feet of 18-lb.; 70,960 feet of 12-lb.

Appended hereto are the following tables relating to timber used in the Pictou collieries:—

TABLE I.

*Timber used underground Acadia Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit Props	5'	5"	115096	575480
	8'	5½"	18806	150448.2
			Total.....	725928.2
Booms	10	6	14238	142380
	12	7	3546.4	42552.14
			Total.....	184932.4
Sleepers		Width of face and thickness		
	4	3½"x3"	2654	10616
			Total.....	10616

**TABLE II.***Timber used underground Albion Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	8	5½	28708	229664
	10	6	22966	229661
			Total.....	459365
Booms	10	6½	10211	102112
	12	7	26361	316332
			Total.....	418444
Sleepers		Width of face and thickness		
	4	3½"x4"	9021	36084
			Total.....	36084

TABLE III.

*Timber used underground Vale Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	5	4½—5	79340	396700
	6	5	6453.2	38720
	8	5½	184	1472
			Total.....	436892
Booms	15	7½	2770.5	41555
	13	7	324	4212
	10	6	263	2630
			Total.....	48397
Sleepers		Width of face and thickness		
	4	3"x4"	2662.2	10650
			Total.....	10650

TABLE IV.

*Timber used underground Allen-Shafts Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	8	5	19162	153396
	10	5	260	12600
	10	6	9278	92780
	25	4	289.8	7245
			Total.....	256025
Booms	12	6	4913	58956
	14	6	92	1288
	15	6	42	630
	16	6	136	2176
	20	6	31	618
			Total.....	63668
Sleepers		Width of face and thickness		
	4	3½"x3"	1309	5236
	11	5"x5"	43	476
			Total.....	5712

TABLE V.

*Timber used underground Drummond Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	5 8	4½ 5	..... .....	..... 2221084
			Total.....	2221084
Booms	10 12	..... .....	..... .....	..... 641476
			Total.....	641476
Sleepers		Width of face and thickness		
	4	3½" x 3"	.....	24640
			Total.....	24640

REPORT OF E. B. PAUL, *Deputy Inspector.*

Report on the coal mines in the Cumberland district for the fiscal year ended September 30th, 1913.

## SPRINGHILL No. 2 MINE.

(Leased and operated by the Dominion Coal Company.)

The coal from No. 1 seam at the 2600-foot and 2800-foot levels is being run down to the 3300-foot level in chutes and by inclines. Practically no development work has been done in this mine during the last year except on level, going east from tunnel, which has been extended 600 feet.

The mine is dry in sections and water is conveyed in  $\frac{3}{4}$ -inch pipes from pumps to sprinkle the dry places. About 114 lbs of explosives were used.

*Rails used*:—5300 yds., 12 lbs. per yd.; 7983 yds., 18 lbs. per yd.; 3000 yds., 30 lbs. per yd.; 20 yds., 40 lbs. per yd.

The works are divided into 7 sections. No. 1 has 35 skilled workmen and 24 unskilled; No. 2 has 29 skilled workmen and 28 unskilled; No. 3 has 22 skilled workmen and 20 unskilled; No. 4 has 36 skilled workmen and 37 unskilled; No. 5 has 22 skilled workmen and 25 unskilled; No. 6 has 62 skilled workmen and 60 unskilled; No. 7 has 28 skilled workmen and 24 unskilled. Total, skilled, 234; unskilled, 215.

*Officers*:—Walter Herd, resident supt.; M. D. Matthews, manager; J. C. Nicholson, assistant manager; Wm. Lorimer, underground manager; George Burden, overman; J. C. McNeil, overman; Burten Langille, overman.

*Date of Inspection Visits*:—Barometric pressure and temperature at 3300-foot lift:—Oct. 2, 14, 15, 17—31 in., 60 deg.; Nov. 8, 9, 11, 12—31.4 in., 60 deg.; Dec. 10, 11, 13, 14, 25, 26, 27, 30—31.6 in., 60 deg.; 6, 7, 8, 9, 26—31.7 in.; 65 deg.; Feb. 11, 12, 14, 15—31.7 in.; 65 deg.; Mar. 11, 12, 14, 17—31.5 in., 67 deg.; April 26, 28, 30—31.1 in., 66 deg.; May 12, 19, 20, 22—31.2 in., 60 deg.; June 12, 14, 16, 17—31.3 in., 58 deg.; July 7, 8, 9, 10—31.5 in., 68 deg.; Aug. 4, 5, 6, 8, 12—31.6 in., 60 deg.; Sept. 8, 9, 10, 12—31.4 in., 68 deg.



All travelling roads are in good condition, except from the 3000-foot lift to the surface, where there is a road in the course of construction; the travelling at the present being done by the way of the fan-slope and pump-slope.

Since the fire in No. 5 slope, all machinery has remained in its place but has been in disuse.

#### SPRINGHILL NO. 3 MINE.

(Leased and operated by the Dominion Coal Company.)

The travelling-roads are in very good condition, except from the 3200-foot lift to surface, where the pump-slope and the fan-slopes have been used for travelling roads, when required.

The mine is dry in sections, and water is conveyed in  $\frac{3}{4}$ -inch pipes to sprinkle the dry places. The bonneted safety-lamps are used.

The company is at present erecting a new air-compressor, which with the old air-compressor, will enable all underground machinery to be run by compressed air.

Rails used:—615 yds. 12-lb.; 3060 yds. 18-lb.; 28 yds. 30-lb.; 2 yds. 40-lb.

The workings are divided into 4 sections. No. 1 has 30 skilled workmen and 30 unskilled; No. 2 has 12 skilled workmen and 12 unskilled; No. 3 has 82 skilled workmen and 79 unskilled; No. 4 has 46 skilled workmen and 46 unskilled; total, skilled, 170; unskilled, 167.

*Officers:*—Walter Herd, resident supt.; W. D. Matthews, manager; J. C. Nicholson, assistant manager; David McSaveny, underground manager; W. A. Wilson, overman; Alex. McLeod, overman; James Scott, overman.

Date of inspection visits and barometric pressure and temperature at the 3200-foot lift:—Oct. 29, 30—31 in., 59 deg.; Nov. 2, 14, 18. 19—31 in., 58 deg.; Dec. 5, 6—31.2 in., 56 deg.; Jan. 28, 30—31 in., 57 deg.; Feb. 18, 20—30 in., 56 deg.; Mar. 7, 8—30.5 in., 56 deg.; April 1, 3, 5—31.3 in., 55 deg.; May 7, 8—31.1 in., 56 deg.; June 6, 7, 9, 20—31.7 in., 58 deg.; July 28, 29—31.1 in., 68 deg.; Aug. 18, 19—31.1 in., 58 deg.; Sept. 16, 18—31 in., 60 deg.

I regret to report that there was a slight fire in the fanway, over the 2600-foot level, No. 3 mine, on June 20th. It is evident that this fire was caused by sparks from the steel rope running over a steel roller, catching in some timber, which was saturated with oil, below the roller. The fire was discovered immediately after it started, and by prompt action was extinguished within half an hour.

In this connection, I wish to state, that had the officials not the use of several small fire-extinguishers, known as the fire-king, the result would have probably been the loss of No. 3 mine. These little fire-fighters have in the past been looked upon as useless in the mine, but they were so useful at this time that now there are two or three in every pump-house and several in the officials' cabin underground, and one at every drum; this, I think, is a wise precaution.

#### MINUDIE MINE, RIVER HEBERT.

(Owned and operated by the Minudie Coal Company, Limited.)

This mine is owned and operated by the Minudie Coal Company, Limited.

The slope is down 3000 feet, is 5 feet 6 inches high by 10 feet wide.

The mine is naturally damp throughout and is well ventilated, and very little gas is found.

Rails in use:—115,000 ft. 12 lb. per yard; 8800 ft., 18 lb. per yard.

The workings are divided into 5 sections. In 2500 east there are 19 skilled workmen and 3 unskilled; 2500 west, 25 skilled workmen and 3 unskilled; 2800 east, 18 skilled workmen and 2 unskilled; 2800 west, 20 skilled workmen and 2 unskilled; 1900 east, 6 skilled workmen and 1 unskilled; total, skilled, 88; unskilled, 11; slope No. 1, unskilled, 7.

*Officers:*—John S. Barton, general manager; Jos. Barton, underground manager; Thos. Barton, overman; Everett McLeod, night overman.

The No. 1 slope has been driven 300 feet, during the year. The 2500-foot east and west levels, 400 feet; and the 2800-foot east and west levels, 500 feet.

Safety lamps are used. No changes have been made on the surface during the year.

4500 lbs. of dynamite and 7325 lbs. of powder have been used.

## VICTORIA MINE, RIVER HEBERT.

(Owned and operated by the Minudie Coal Company, Limited.)

This mine is owned and operated by the Minudie Coal Company, Limited.

The slope is down 580 feet, which is nearly all this year's work. The east levels in No. 1 seam have been driven 300 feet, and west levels, 350 feet. A stone drift 145 feet, from No. 1 to No. 2 seam, has been driven. The east level, in No. 2 seam, has advanced 250 feet, and west 300 feet.

This mine is damp, with no gas, and has natural ventilation, assisted by exhaust steam from a pump in the up-cast.

Rails used:—35,000 feet 12-lb.; 1200 feet 18 lb.

The workings are divided into 4 sections. No. 1 seam, 500 east, 8 skilled workmen and 3 unskilled; No. 1 seam, 500 west, 4 skilled workmen; No. 2 seam, 500 east, 12 skilled workmen and 2 unskilled; No. 2 seam, 500 west, 12 skilled workmen and 2 unskilled; total. skilled, 36; unskilled, 7.

*Officers*:—John S. Barton, general manager; George Stevenson, underground manager; James Wass, overman.

## JOGGINS MINES.

(Owned and operated by the Maritime Coal, Railway and Power Company.)

The main slope, which averages 6 by 10 feet, in the clear, is down 3300 feet from the surface, and with air-slope, is in good condition.

The mine is well ventilated, about 30,000 cubic feet of air a minute being in circulation. There is one air-split at the 2800-foot landing. The mine makes very little gas and safety-lamps are used.

There are four levels east and west, viz., 1800, 2300, 2800, and 3300, the average distance of these levels being about 3000 feet from main slope. The 2800 and 3300 feet levels, east and west, are now worked long-wall. The machines used are pick-quick long-wall bar-machines, electrically operated. The upper levels, 1800 and 2300 feet, are worked bord-and-pillar.

The development work for the year consisted in sinking the new lift from the 2800 to the 3300-foot levels, and developing

these latter levels east and west, and getting two new machine-faces 350 feet long, one on each side of the main slope.

Endless-rope haulage is used on the main slope, and also on the 1800-feet levels east: horse haulage being used on all of the other levels.

17,000 lbs. of explosives have been used during the year.

There are two electrically-driven pumps in the mine and the total quantity of water that can be discharged in an hour is 7000 gallons.

There are 23 skilled men and 38 unskilled men on the surface.

The mine is divided into three sections:—No. 1 section includes the working faces on the 1800 and 2300-feet levels, east and west; No. 2 section, the 2800-feet levels east and west; No. 3 section, the 3300-feet levels east and west.

Number of men employed in sections No. 1, 2 and 3:—No. 1 section, skilled, 92; unskill 35; No. 2 section, skilled, 52; unskilled, 25; No. 3 section, skilled, 56; unskilled, 33; total, 293.

There are in the mine 26,700 feet of rails, 26 lb.; 18,500 feet of rails, 18 lb.; 66,000 feet of rails, 12 lb.

*Officers:*—R. J. Bell, general manager; Samuel Gray, underground manager; James Fairley, overman; Chas. J. Kent, overman; John Graham, overman.

#### CHIGNECTO MINE.

(Owned and operated by the Maritime Coal, Railway and Power Company, Limited.)

This mine has been idle since the end of March, and the lower levels being now full of water. The question of re-opening the mine depends upon the general policy, which has yet to be adopted in regard to the working of the several areas of the company.

About fifty men were employed taking out coal from the abandoned level-pillars, up to the end of March.

#### FUNDY MINE, LOWERCOVE.

(Owned by the Atlantic Grindstone and Coal Company, Limited.)

This mine is operated by Mr. John Rector, and was known as the Old Hard-Scrabble slope. The mine is down 270 feet to a water level. It was formerly driven from high-water mark at the shore.

---

There are from 6 to 8 men working in this mine. Mr. Rector has been disposing of his output to the Maritime Coal, Railway and Power Company, Limited.

The only machinery being a small upright boiler and a hoisting engine.

The Black Diamond mine, the Jubilee, and the Maple Leaf have not been in operation during the year.

Appended hereto are the following tables relating to the mines in the Cumberland district:—

TABLE I.

## SPRINGHILL COLLIERIES, MINE No. 2.

*Table of Temperature, Barometer Pressures, Hygrometric readings, Relative Humidity and quantity of water extracted from or deposited in Mine by Air Current. Readings taken Periodically during year ended October 11th, 1913.*

NOTE:—The — sign in front of figures in last column denotes water extracted from mine and X sign water deposited in mine.

Date	Airway	Quantity of Air Passing Per Minute	Barometer Reading	Wet Bulb	Dry Bulb	Degree of Humidity Sat'n. 100	Gals. of Water Per Min. Extracted from or Deposited in Mine by Air Current
Oct. 19, 1912.	Return. ....	10,900 Cubic feet.	29.5 inches.....	53½° F	54½° F	93 }	— .78
"	Intake.....	"	"	54½°	59½°	71 }	
" 30,	Return .....	"	29.3	52½°	53½°	93 }	—2.96
" "	Intake. ....	"	"	43½°	49½°	63 }	
Nov. 9,	Return.....	"	29.26	54	55	93 }	—2.80
" 9,	Intake.....	"	"	43½°	47½°	73 }	
" 16,	Return.....	"	29.36	51	50	93 }	—3.12
" 16,	Intake.....	"	"	32	34	79 }	
" 23,	Return.....	"	29.42	49½°	50½°	93 }	—1.56
" 23,	Intake.....	"	"	44½°	48½°	73 }	
" 29,	Return.....	"	29.58	47½°	48½°	93 }	—4.04
" 29,	Intake.....	"	"	24½°	26½°	59 }	

Dec. 5,	"	Return.....	"	"	29.82	"	45½	"	46½	"	93	.....	—1.87
" 5,	"	Intake.....	"	"	"	"	36½	"	39½	"	77	.....	
" 12,	"	Return.....	"	"	29.18	"	46	"	47	"	93	.....	—3.10
" 12,	"	Intake.....	"	"	"	"	28½	"	30½	"	71	.....	
" 18,	"	Return.....	"	"	29.74	"	45½	"	46	"	96	.....	—3.58
" 18,	"	Intake.....	"	"	"	"	26	"	28	"	64	.....	
Jan. 11,	1913.	Return.....	"	"	29.56	"	48	"	48½	"	96	.....	—3.12
" 11,	"	Intake.....	"	"	"	"	30	"	37½	"	73	.....	
" 18,	"	Return.....	"	"	29.32	"	49	"	50½	"	89	.....	— .31
" 18,	"	Intake.....	"	"	"	"	49	"	49½	"	96	.....	
" 25,	"	Return.....	"	"	29.20	"	47½	"	48	"	96	.....	—2.30
" 25,	"	Intake.....	"	"	"	"	35½	"	37½	"	83	.....	
Feb. 1,	"	Return.....	"	"	28.72	"	48½	"	50	"	89	.....	— .31
" 1,	"	Intake.....	"	"	"	"	48½	"	49	"	96	.....	
" 8,	"	Return.....	"	"	29.08	"	46	"	46	"	100	.....	—4.04
" 8,	"	Intake.....	"	"	"	"	24	"	26	"	58	.....	
" 15,	"	Return.....	"	"	29.46	"	45	"	45½	"	96	.....	—2.64
" 15,	"	Intake.....	"	"	"	"	30	"	32½	"	73	.....	
Mar. 8,	"	Return.....	"	"	29.02	"	47	"	47½	"	96	.....	—4.20
" 8,	"	Intake.....	"	"	"	"	22½	"	25½	"	43	.....	
" 15,	"	Return.....	"	"	29.24	"	51½	"	53	"	89	.....	.....
" 15,	"	Intake.....	"	"	"	"	50	"	50	"	100	.....	
" 29,	"	Return.....	"	"	29.96	"	49	"	49½	"	96	.....	—3.74
" 29,	"	Intake.....	"	"	"	"	29½	"	32	"	70	.....	
Apr. 5,	"	Return.....	"	"	29.54	"	50½	"	51	"	96	.....	—3.27
" 5,	"	Intake.....	"	"	"	"	33	"	34½	"	83	.....	
" 12,	"	Return.....	"	"	29.56	"	50	"	50	"	100	.....	—1.71
" 12,	"	Intake.....	"	"	"	"	43	"	44½	"	88	.....	

TABLE I.—(Continued).

SPRINGHILL COLLIERIES, MINE No. 2.

Table of Temperature, Barometer Pressures, Hygrometric readings, Relative Humidity and quantity of water extracted from or deposited in Mine by Air Current. Readings taken Periodically during year ended October 11th, 1913.

NOTE.—The—sign in front of figures in last column denotes water extracted from mine and X sign water deposited in mine.

Date	Airway	Quantity of Air passing per minute	Barometer Reading	Wet Bulb	Dry Bulb	Degree of Humidity Sat'n. 100	Gals. of Water Per Min. Extracted from or Deposited in Mine by Air Current
Apr. 19, 1913.	Return.....	10,900 Cubic feet.	29.28 inches.	51½° F	52° F	96 } .....	—1.56
" 19,	Intake.....	"	"	45	46½ "	89 } .....	
" 25,	Return . ....	"	29.70	53	53 "	100 } .....	X2.34
" 25,	Intake.....	"	"	59	62½ "	80 } .....	
May 3,	Return.....	"	29.58	53½	53½ "	100 } .....	—1.87
" 3,	Intake.....	"	"	48	51 "	80 } .....	
" 10,	Return.....	"	29.36	53	53½ "	96 } .....	—2.49
" 10,	Intake.....	"	"	41½	43 "	88 } .....	
" 17,	Return.....	"	29.68	52½	53 "	96 } .....	—2.80
" 17,	Intake.....	"	"	38	39 "	92 } .....	
" 23,	Return.....	"	29.40	53	53 "	100 } .....	—1.87
" 23,	Intake. ....	"	"	46½	48½ "	86 } .....	



" 31,	"	Return.....	"	29.30	"	....	54½	"	55	"	96	.....	-1.87
" 31,	"	Intake.....	"	"	"	....	48	"	50	"	86	.....	
June 7,	"	Return.....	"	29.30	"	.....	56	"	56½	"	97	.....	X0.62
" 7,	"	Intake.....	"	"	"	....	59½	"	61½	"	88	.....	
" 13,	"	Return.....	"	29.52	"	.....	57	"	57	"	100	.....	-1.56
" 13,	"	Intake.....	"	"	"	....	57	"	64	"	63	.....	
" 21,	"	Return.....	"	29.34	"	.....	56½	"	57½	"	93	.....	-0.31
" 21,	"	Intake.....	"	"	"	....	58	"	62½	"	74	.....	
" 28,	"	Return.....	"	29.12	"	.....	77½	"	58	"	97	.....	-0.31
" 28,	"	Intake.....	"	"	"	.....	60	"	64½	"	75	.....	
July 5,	"	Return.....	"	29.34	"	.....	59½	"	59½	"	100	.....	X1.87
" 5,	"	Intake.....	"	"	"	.....	67½	"	70½	"	83	.....	
" 12,	"	Return.....	"	29.40	"	...	60	"	60	"	100	.....	-1.09
" 12,	"	Intake.....	"	"	"	....	59½	"	63	"	80	.....	
" 17,	"	Return.....	"	29.46	"	....	60	"	60	"	100	.....	- .62
" 17,	"	Intake.....	"	"	"	.....	61½	"	65½	"	78	.....	
Aug.23,	"	Return.....	"	29.50	"	....	59½	"	59½	"	100	.....	- .78
" 23,	"	Intake.....	"	"	"	....	60½	"	65	"	76	.....	
" 30,	"	Return.....	"	29.32	"	.....	61½	"	61½	"	100	.....	X .78
" 30,	"	Intake.....	"	"	"	.....	67½	"	71½	"	78	.....	
Sept. 6,	"	Return.....	"	29.70	"	.....	59½	"	59½	"	100	.....	-3.58
" 6,	"	Intake.....	"	"	"	.....	46½	"	48½	"	86	.....	
" 13,	"	Return.....	"	29.40	"	....	58	"	58	"	100	.....	-2.02
" 13,	"	Intake.....	"	"	"	.....	53½	"	56½	"	81	.....	
" 20,	"	Return.....	"	29.64	"	.....	58½	"	58½	"	100	.....	-2.96
" 20,	"	Intake.....	"	"	"	.....	50½	"	54	"	77	.....	
" 27,	"	Return.....	"	29.30	"	....	58½	"	58½	"	100	.....	-2.02
" 27,	"	Intake.....	"	"	"	....	54½	"	58	"	78	.....	

TABLE 1.—(Continued).

SPRINGHILL COLLIERIES, MINE No. 2.

Table of Temperature, Barometer Pressures, Hygrometric readings, Relative Humidity and quantity of water extracted from or deposited in Mine by Air Current. Readings taken Periodically during year ended October 11th, 1913.

NOTE:—The—sign in front of figures in last column denotes water extracted from mine and X sign water deposited in mine.

Date	Airway	Quantity of Air Passing Per Minute	Barometer Reading	Wet Bulb	Dry Bulb	Degree of Humidity Sat'n. 100	Gals. of Water Per Min. Extracted from or Deposited in Mine by Air Current
Oct. 4, 1913..	Return.....	10,900 Cubic feet.	29.25 inches...	59° F	59° F	100 } .....	X 0.47
" 4, "	Intake.....	" "	" "	62½ "	64½ "	88 } .....	
" 11, "	Return.....	" "	29.80 "	60 "	61 "	94 } .....	
" 11, "	Intake.....	" "	" "	58 "	62 "	77 } .....	—1.34

TABLE I.—(Continued).

## SPRINGHILL COLLIERIES, No. 3 MINE.

*Table of Temperatures, Barometric pressures, Hygrometric readings, relative Humidity, and quantity of water extracted from or deposited in mine by air current. Readings taken periodically during year ended*

*October 11th, 1913.*

NOTE.—The — Sign in front of figures in last column denotes water extracted from mine and X sign water deposited in mine.

Date	Airway	Quantity of Air passing per minute	Barometer Reading	Wet Bulb	Dry Bulb	Degree of Humidity Sat'n. 100	Gallons of water per minute extracted from or deposited in mine by air current
Oct. 16, 1912	Return.....	89,000 cubic ft....	29.40 inches...	54° F	55° F	93 }	
" 16, "	Intake .....	" "	" "	31 1/2° F	40° F	44 }	—4.06
" 21, "	Return.....	" "	29.88	54 1/2 "	55 1/2° F	93 }	
" 21, "	Intake ...	" "	" "	41 1/2 "	47 1/2 "	61 }	—2.92
" 30, "	Return.....	" "	29.30	53 1/2 "	54 1/2 "	93 }	
" 30, "	Intake .....	" "	" "	43 1/2 "	48 "	61 }	—2.16
Nov. 9, "	Return.....	" "	29.26	54 1/2 "	55 1/2 "	93 }	
" 9, "	Intake .....	" "	" "	44 "	48 "	70 }	—2.29
" 16, "	Return.....	" "	29.36	52 1/2 "	53 1/2 "	93 }	
" 16, "	Intake .....	" "	" "	33 1/2 "	35 1/2 "	81 }	—2.92
" 23, "	Return.....	" "	29.42	53 "	53 1/2 "	96 }	
" 23, "	Intake .....	" "	" "	45 "	49 "	73 }	—2.03

TABLE I.—(Continued).

SRRINGHILL COLLIERIES, No. 3 MINE

Table of Temperature, Barometric pressures, Hygrometric readings, relative Humidity, and quantity of water extracted from or deposited in mine by air current. Readings taken periodically during year ended October 11th, 1913.

NOTE.—The Sign in front of figures in last column denotes water extracted from mine and X sign water deposited in mine.

Date	Airway	Quantity of Air passing per minute	Barometer Reading	Wet Bulb	Dry Bulb	Degree of Humidity Sat'n. 100	Gallons of water per minute extracted from or deposited in mine by air current
Apr. 29, 1913	Return....	89,000 cubic ft...	29.58 inches...	49½° F	50° F	96 } .....	—3.56
" 29,	Intake .....	" "	" "	25	27	61 } .....	
Dec. 5,	Return.....	" "	29.82	50	50½	96 } .....	—2.29
" 5,	Intake .....	" "	" "	38	41	77 } .....	
" 12,	Return.....	" "	29.18	50	51	93 } .....	—3.05
" 12,	Intake .....	" "	" "	29	31	72 } .....	
" 18,	Return.....	" "	29.74	48	48½	96 } .....	—3.18
" 18,	Intake .....	" "	" "	26	28	64 } .....	
Jan. 11, 1913	Return.....	" "	29.56	47	47½	96 } .....	—2.67
" 11,	Intake .....	" "	" "	30	32½	73 } .....	
" 18,	Return.....	" "	29.32	50	50½	96 } .....	—0.63
" 18,	Intake .....	" "	" "	48½	50½	86 } .....	

"	23,	"	Return.....	"	..	29.20	"	..	47½	"	48	"	96	..	—1.90
"	23,	"	Intake .....	"	..	"	"	..	36½	"	38½	"	83	..	
Feb.	1,	"	Return.....	"	..	28.72	"	..	49½	"	50	"	96	..	—0.25
"	1,	"	Intake .....	"	..	"	"	..	49	"	50½	"	90	..	
"	8,	"	Return.....	"	..	29.08	"	..	45	"	45	"	100	..	—1.52
"	8,	"	Intake .....	"	..	"	"	..	25	"	26½	"	69	..	
"	15,	"	Return.....	"	..	29.46	"	..	46	"	46	"	100	..	—2.29
"	15,	"	Intake .....	"	..	"	"	..	32	"	34	"	79	..	
Mar.	8,	"	Return.....	"	..	29.02	"	..	47	"	47	"	100	..	—3.70
"	8,	"	Intake .....	"	..	"	"	..	23½	"	26½	"	47	..	
"	15,	"	Return.....	"	..	29.24	"	..	50	"	50	"	100	..	—0.25
"	15,	"	Intake .....	"	..	"	"	..	57½	"	54	"	83	..	
"	29,	"	Return.....	"	..	29.96	"	..	51	"	51½	"	96	..	—3.43
"	29,	"	Intake .....	"	..	"	"	..	30	"	33	"	70	..	
Apr.	5,	"	Return.....	"	..	29.54	"	..	52½	"	52½	"	100	..	—3.05
"	5,	"	Intake .....	"	..	"	"	..	33½	"	35	"	84	..	
"	12,	"	Return.....	"	..	29.56	"	..	52	"	52	"	100	..	—1.78
"	12,	"	Intake .....	"	..	"	"	..	43	"	44½	"	89	..	
"	19,	"	Return.....	"	..	29.28	"	..	53	"	33½	"	96	..	—1.78
"	19,	"	Intake .....	"	..	"	"	..	45	"	47	"	86	..	
"	25,	"	Return.....	"	..	29.70	"	..	56	"	56	"	100	..	No. 25
"	25,	"	Intake .....	"	..	"	"	..	60	"	63½	"	80	..	
May	3,	"	Return.....	"	..	29.58	"	..	56½	"	56½	"	100	..	—1.65
"	3,	"	Intake ...	"	..	"	"	..	50	"	52	"	86	..	
"	10,	"	Return.....	"	..	29.36	"	..	53½	"	54	"	96	..	—2.54
"	10,	"	Intake .....	"	..	"	"	..	40½	"	43	"	81	..	
"	17,	"	Return.....	"	..	29.68	"	..	54	"	54	"	100	..	—2.54
"	17,	"	Intake .....	"	..	"	"	..	40½	"	41½	"	92	..	

TABLE I.—(Continued).

SPRINGHILL COLLIERIES, NO. 3 MINE.

Table of Temperatures, Barometric pressures, Hygrometric readings, relative Humidity, and quantity of extracted from or deposited in mine by air current. Readings taken periodically during year ended October 11th, 1913.

NOTE:—The—Sign in front of figures in last column denotes water extracted from mine and X sign water deposited in .

Date	Airway	Quantity of Air passing per minute	Barometer Reading	Wet Bulb	Dry Bulb	Degrees of Humidity Sat'n. 100	Gallons of water per minute extracted from or deposited in mine by air current
Oct. 23, 1913	Return.....	89,000 cubic ft. . .	29.40 inches . .	57°	F°	100 } . . . .	—2.16
" 23, "	Intake .....	" "	" "	48	" "	" 86 } . . . .	
" 31, "	Return .....	" "	29.30	58	" "	100 } . . . .	—2.41
" 31, "	Intake .....	" "	" "	48	" "	" 86 } . . . .	
June 7, "	Return .....	" "	29.30	59	" "	100 } . . . .	—0.51
" 7, "	Intake .....	" "	" "	59	" "	" 88 } . . . .	
" 13, "	Return .....	" "	29.52	57	" "	97 } . . . .	—1.02
" 13, "	Intake .....	" "	" "	57	" "	" 67 } . . . .	
" 21, "	Return .....	" "	29.34	60	" "	97 } . . . .	—1.52
" 21, "	Intake .....	" "	" "	57	" "	" 74 } . . . .	
July 5, "	Return .....	" "	29.34	63	" "	100 } . . . .	Xo.76
" 5, "	Intake .....	" "	" "	68½	" "	" 84 } . . . .	

"	12,	"	Return.....	"	..	29.40	"	..	62½	"	62½	"	100	.....	—1.43
"	12,	"	Intake .....	"	..	"	"	..	60	"	63	"	82	.....	
"	17,	"	Return.....	"	..	29.46	"	..	62	"	62	"	100	.....	—1.65
"	17,	"	Intake .....	"	..	"	"	..	59	"	63½	"	74	.....	
Aug. 23,	"	"	Return.....	"	..	29.50	"	..	62	"	62	"	100	.....	—0.63
"	23,	"	Intake .....	"	..	"	"	..	62½	"	65½	"	83	.....	
"	30,	"	Return.....	"	..	29.32	"	..	64½	"	64½	"	100	.....	—0.00
"	30,	"	Intake .....	"	..	"	"	..	68	"	72	"	79	.....	
Sept. 6,	"	"	Return.....	"	..	29.70	"	..	61	"	61	"	100	.....	—3.30
"	6,	"	Intake .....	"	..	"	"	..	47	"	49	"	86	.....	
"	13,	"	Return.....	"	..	29.40	"	..	60	"	60	"	100	.....	—1.90
"	13,	"	Intake .....	"	..	"	"	..	54½	"	57½	"	81	.....	
"	20,	"	Return.....	"	..	29.64	"	..	60½	"	60½	"	100	.....	—3.30
"	20,	"	Intake .....	"	..	"	"	..	49	"	53½	"	72	.....	
"	27,	"	Return.....	"	..	29.30	"	..	60½	"	60½	"	100	.....	—2.03
"	27,	"	Intake .....	"	..	"	"	..	55	"	59	"	76	.....	
Oct. 4,	"	"	Return.....	"	..	29.25	"	..	63	"	63	"	100	.....	—0.51
"	4,	"	Intake .....	"	..	"	"	..	63	"	65	"	88	.....	
"	11,	"	Return.....	"	..	29.80	"	..	62	"	63	"	94	.....	—1.78
"	11,	"	Intake .....	"	..	"	"	..	58	"	63	"	72	.....	

Springhill, N. S.

November 4, 1913.

TABLE II.

*Timber used underground Springhill No. 2 Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	4	4	3325	13300
	3½	5	29218	160699
	8	5	12413	99304
	10	5	41954	419540
	12	5	1172	14064
Booms	10	6	28116	281160
	12	6	216	2592
	10½	9	2060	21693
Split Booms	14	6	3255	45570
Split Booms	10	3	18805	188050
	12	10	431	5172
	14	10	850	13900
Sleepers		Width of face and thickness		
Sq. Tim. Boards Plank Brick	.....	5"x3"	.....	179435
	.....	9"x5"	.....	21072
	.....	10"x10"	.....	2610
	.....	.....	.....	134660
	.....	.....	.....	8105
	7325	.....	.....	.....



**TABLE III.***Timber used underground Springhill No. 3 Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	4	4	16678	67112
	5½	5	9820	54010
	8	5	8479	67832
	10	5	2682	26820
	12	5	9809	117700
Booms	10	6	14830	148300
	12	6	473	5676
	14	6	3367	47138
	10½	9	1354	14217
Splits	10	3	16458	164580
	12	10	1238	14856
	14	10	166	2324
Sleepers		Width of face and thickness		
Plank Sq. timber Deal Slabs	12	5"x3"	5862	87928
	12	9"x5"	74	3330
	12	10"x3"	467	14003
	12	10"x10"	49½	1604
	.....	.....	.....	1120
	10	.....	1211	12110

**TABLE IV.***Timber used underground Joggins Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	6	14543	87258
	4	4	252486	1009944
Booms	10	7	5985	59850
	13	8	1645	21385
Sleepers		Width of face and thickness		
	4	3"x4"	9199	36796
	6	4"x6"	3019	18114

**TABLE V.***Timber used underground Chignecto Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	6	5—6	2796	16776
	4	.....	1832	7328
Booms	10	.....	356	3560
	12	.....	148	1776
Sleepers		Width of face and thickness		

**TABLE VI.***Timber used underground Minudie Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	3	4	6160	18480
	4	5	57049	228196
	6	6	1190	7140
Booms	8	7	707	5656
	10	8	187	1870
	12	8	72	864
Sleepers		Width of face and thickness		
4' long	.....	5"x3"	1004	4016
6' "	.....	6"x4"	582	3492
8' "	.....	7"x4"	446	3568
10' "	.....	8"x4"	30	300
12' "	.....	8"x4"	3	36

**TABLE VII.***Timber used underground Victoria Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props	3	4	6519	19557
	4	5	5620	22480
	6	6	556	3336
	8	7	154	1232
Sleepers		Width of face and thickness		
Boom	8	7"	63	504
	10	8"	30	300
	12	8"	89	1068
	4	5"x3"	392	1568
	4	5"x4"	511	2044
	6	6"x4"	214	1284
	8	7"x4"	53	424
	12	8"x4"	12	144
	14	9"x4"	4	56

REPORT OF WALTER F. DAVIS, *Deputy Inspector.*

Report on the coal mines, in Inverness District, for the year ended September 30th, 1913.

## INVERNESS MINE.

(Owned and operated by the Inverness Railway & Coal Co.)

The haulage slope is 5,700 feet long and 10 feet wide, and is in good condition. The slope dips from 15 degrees at the surface to 28 degrees at the bottom.

No. 7 west level has advanced 81 feet during the year, being now in 4381 feet.

No. 7 east level has advanced 500 feet during year, being now a total length of 5400 feet.

No. 8 west level has advanced 1300 feet during the year, being now a total length of 4200 feet.

No. 8 east level has advanced 1350 feet during the year, being now in a total distance of 5100 feet.

No. 9 west level was started at the beginning of the year and is now in 1100 feet. There are four chutes started off this level a distance 60 feet apart, the first chute being 600 feet from main haulage road. The bords in this section will be nine feet wide and pillars 43 feet.

No. 9 east level was started since last report and is now in a distance of 1200 feet. No. 1 chute is driven through to No. 8 level. The bords in this section are 9 feet wide and the pillars 43 feet. The upper six bords on east side are driven in 150 feet. The average cover over the pillars in this section is 1350 feet.

At present over 80 per cent. of the coal is being extracted. In previous years the percentage was much less, partly on account of the pillars not being drawn, which was owing to there not being enough cover, and partly on account of eighteen inches of top coal being left in.

The riding-rake slope from the surface to No. 7 level, which is nine feet wide, is kept in good repair. The back-angle slope from No. 7 to 8 level has been cleared and timbered as a travelling way. This and other travelling ways are in good condition.

The quantity of air in circulation is 85,000 cubic feet per minute, being produced by a fan 7 by 18 feet, with a water-gauge of 2.8 inches.

There are 700 lead-plug safety-lamps on hand, of which 609 are working, leaving 91 in reserve. No open lights are used.

The mine is damp and free from dust. No sprinkling is done.

The number of men employed in each section is as follows:—

No. 7 east, 169; No. 7 west, 54; No. 8 east, 174; No. 8 west, 107; No. 9 east, 48; No. 9 west, 40; elsewhere, 17; total, 609.

There are 116 men and boys employed on the surface.

*Officers:*—J. McGillivray, general manager; H. A. McLeod, mine Manager; Alex. Ross, mechanical supt.; Neil P. McLellan, underground manager; S. J. Doucett, overman; John D. Ferguson, overman; John A. Kennedy, overman; James P. McNeil, overman; Dan C. McKenzie, night examiner; Samuel Price, night examiner.

The average thermometer reading in the return airway near the workings, is 64 degrees Fahrenheit.

The main haulage ropes are  $1\frac{1}{4}$  inch diameter, the travelling-slope rope is 1 inch diameter.

For fire protection, a line of 4-inch pipe, connected to the town main, runs through the yard; there is a hydrant at each end of the yard; a 2-inch pipe line laid in and around the bankhead, with hose connections at different points; 95 lbs. water pressure in pipe lines; 300 feet of rubber hose and 500 feet of cotton hose with reel, ready for immediate use.

There were 38,631 lbs. of explosives used during the year.

Fifty-six-lb. rails are used on the haulage slope to No. 7 level; remainder in this slope are 30-lb. rails; 30-lb. rails on the travelling slope and levels, and 18-lb. rails on the balances and in bords. There are 7480 feet of track laid with 56-lb. rails; 17,365 feet with 30-lb. rails; 117,765 feet with 18-lb. rails. 15,611 feet of 18-lb. rails have been laid during the year.

The improvements worthy of note during the year are:—the hoisting-engine house of steel frame and corrugated sheeting, size 57 by 67 feet; boiler house of wood, 100 by 60 feet, with corrugated-sheet roof; two powder magazines of wood, each 12 by 16 feet; one horizontal duplex direct-acting reversible hoisting-engine, and two 217 h. p. water-tube boilers.

Appended hereto is a table of timber used underground, Inverness colliery.

*Timber used underground Inverness Colliery.**Year ended September 30th, 1913.*

Class of Timber	Length feet	Diameter small end inches	Number of pieces	Total Lineal feet
Pit props—				
Spruce	7	5	141914	993398
Booms—				
Spruce	14	6	4718	66052
“	12	6	15691	188292
“	10	6	9793	97930
Sleepers		Width of face and thickness		
Spruce	6	8"x6"	284	1704
“	8	4"x4"	7284	58272
“	4	4"x4"	7537	30148



## SPECIAL REPORTS.

---

Report of THOMAS BLACKWOOD, *Deputy Inspector*, on a fire in the  
Intercolonial Coal Mining Company's Colliery.

The fire was first discovered on Sunday, February 23rd, 1913. For some days previously to the above date, a peculiar smell was noticed, and on making an examination on Sunday, February 23rd, smoke was discovered coming out of the No. 2 crosscut in the No. 1 balance in No. 8 level, south side. This crosscut was driven for air purposes between the balance and backhead when they were being driven.

On receiving news of the fire, at about 11 a.m. on the 23rd of February, I immediately went into the mine, and saw where the fire was. At that time it was not considered to be of much consequence. A line of 2½-inch water-hose was secured, and run from the slope into the fire. The hose was connected to the water-pipe line at No. 8 level, which leads from the No. 9 pump up to No. 5 level. A good supply of water was got out, and immediately put on to the fire. As soon as the water was turned on it gave off a very heavy volume of steam; and as the crosscut was all crushed and fallen in, it was found necessary to rib in along the high side of the crosscut. There were plenty of willing help to carry on the work. The stream of water still being kept going, the ribbing was continued by relays of men, night and day, until Monday night, and a connection opened up to the backhead. By Tuesday, February 25th, the fire was considered to be all out, and operations in all the other sections of the mine were resumed.

Work was still continued in the crosscut and in the backhead, as it was the intention to clean it all out, so as to make sure that the fire was extinguished.

On the morning of March 1st, the night examiner reported a bad smell on the top sheets, and on going down that day, I met the manager and some of the under officials. I asked for one of the overmen to accompany me to see if we could find where the bad smell was coming from. On going into the top south-bord, a distance of about 20 feet, I lost the smell. We then went into the north bord, about the same distance, and could find no smell there, so I concluded that it must be between those two points. The over-

man climbed over the drum-barrel and up about 15 feet to a canvas, he put it aside, and looked up the balance, saw the fire had broken out about 30 feet above the drum-barrel, and about 100 feet further up the balance from where it was first discovered in the No. 2 crosscut. The men who were working in the No. 2 crosscut were withdrawn, and preparations made to put out the fire discovered above the drum-barrel. The drum-barrel was removed and a clearance made and the water-hose lengthened, brought up the balance towards the fire, and a good stream of water turned on. It was kept constantly on the fire under very difficult conditions, as the steam and fumes from the fire were very strong, which made it very severe on men who were handling the hose and clearing a way up towards the fire. The men worked bravely against great obstacles. The place was very narrow and low, as all of the coal had been worked out above the drum, the pillars drawn out of the bottom coal and the roof all caved in. However, the men fought bravely until the crosscut or old bord above the drum barrel was reached and timbered up.

In the meantime the fire broke out in the No. 2 crosscut again; another line of pipe was run in from the slopes and up the balance, and branches taken off at each crosscut, all having a good supply of water. The shifts were then organized; each shift having a certain number of men under the charge of an official. Mr. Donkin, Inspector of Mines, arrived, and was informed about the conditions in the mine, and what had been done; and was consulted as to what other precautions would be necessary to be taken. Meantime the men were fighting the fire, and cleaning away as speedily as possible under very trying and difficult conditions. Not much fire was to be seen, but the place was very hot and fire-stink very strong. The fire above the drum by this time had been very well cooled down, but required men and the hose to be kept constantly there to keep the fire down.

While attention was being given to the No. 2 crosscut and up the backhead, it got so hot up in the backhead that it was considered advisable to start downhill on it from the bord above and fight it downhill, at the same time, keeping the water-supply going uphill until it was well cooled down.

On the 4th of March, James G. McKenzie, John Higson, Malcolm Blue and myself were delegated by the Commissioner of Public Works to further investigate. The report of this commission I am annexing hereto.

The men kept up the fight manfully, and made good progress. On the 12th day of March, it was considered that the fire was well under control, and that in a day or two it would be all out. On or about 7 p.m. the commission visited the seat of the fire, and all of the surrounding work, and were satisfied that no dangerous condition existed. Shortly after they left the mine, a large body of fire was found in an old head about 80 or 90 feet north of where the second fire was discovered. It did not seem that there were any connections between any one of the three fires. This fire was the most serious one. A fall came in the head, and large pieces of red-hot rock came with it. It was a very trying time on the men, to keep the water on the fall as the steam was very dense, and hot, and the fumes from the fire were very strong. The fight was kept up for some time longer, at all of the three places, but not much headway was being made. It was then decided to build off all communications between No. 1 balance and No. 2 balance, so as to exclude the air from the fire; also to build off the bottom of No. 1 balance and backhead. This was done under very difficult conditions, as there was no roof to build up against and the rib-sides were all cracked and open. However, in about one week or so this work was completed as well as it could be done. It kept the fire down, and operations were resumed in the No. 3 and 4 balances inside, and in the No. 4 slope which had been idle since the fire broke out.

After about two weeks, the fire smell did not seem to diminish. After having a consultation with the management, it was decided that it would be advisable to stop all operation in the No. 8 level south, and wall it off on the level near the bottom, in the top part of the seam, the low levels, and on the No. 4 slope side; as the air of this section came direct from No. 4 slope. This was done, and a return airway opened up in the No. 5 level for No. 4, as this was the original return airway for No. 4, previously to the connection in No. 8 level.

The commission recommended that stoppings be built from No. 8 level up to and including No. 6 level, as the fire-district was very close to the main return-airway leading towards the fan, so as to prevent the fan from drawing the fire out into the return airway. As this was a large piece of work to be done in a short time, it required a large number of men to keep it going night and day.

The total number of stoppings required to wall off the section in No. 2 slope and in No. 4 slope was 51; those from No. 6 level

down to the lower level in No. 8 were of an enormous width and height, being from 18 to 20 feet in width, and about 16 to 18 feet in height, and the one on No. 6 level had to be cut through the pillar to the low level, as the pillar was so much broken and crushed. This stopping was 65 feet in length, with an average height of 8 feet. The stopping on the No. 8 level had to be treated the same as the one on No. 6 level, for the same reasons. This stopping was 70 feet in length, having an average height of 8 feet; it took nearly three months to get them all completed. The most of them were built with 5-foot blocks of wood, heavily bedded in cement, mortar, and sand, while others were built of concrete and closed up with brick and mortar. After all was completed the fire was all damped down and has not showed any signs of life since.

A close watch is kept on all of the stoppings, and a daily report given as to the conditions during each shift. It is almost impossible to exclude all of the air of the section, owing to so much broken work being overhead and extending for such a distance inside of the fire-section above it and below it. All work on the No. 8 level south, and in No. 4 slope, in the same level, has been walled off and stopped. It has also been thought advisable to leave No. 9 level in the meantime, and to start operations on No. 10 level in the bottom coal, which has now been done. This coal walled off in No. 8 level will in all probability be got out in the future as well as the coal in No. 9 level.

In conclusion, I would say that, I think that there is no doubt that the fire was a gob fire, originating from combustion of a very slow nature. In the first workings of the upper part of the seam, some 25 years or more ago, from 20 to 24 inches of top coal was left up next the roof all over this section, and when a crush took place, a number of years ago, in this section, this top coal all fell, and some 3 or 4 feet of roof on top of it, at the same time cracking and crushing the bottom part of the seam, allowing all of the moisture to run off. The top coal which had fallen and other loose coal became dry and heated, and as soon as the bottom coal was developed and worked, it allowed the air to get into the heated top coal, forming the roof of the bottom coal workings, and causing the combustion to take place more rapidly. It was the general opinion where the fire was first discovered, also my own opinion, that it was in the bottom, but it proved conclusively where the third fire was discovered that it was in the bottom of the upper workings; this is the reason that it proved a hard problem for the men to deal with when trying to fight it. The men who worked at this fire

did noble work under very trying conditions, as the fumes from the fire were very strong, still they fought it manfully.

The management, from the superintendent down to the deputies, gave the men all the encouragement possible, by attending to every detail needed during the trying time: they were always to the front during each shift, day and night, in fact rest, with the majority of them, was a thing that was not thought of.

Report of THOMAS BLACKWOOD, *Deputy Inspector*, on a fire in  
Albion Mines.

The fire broke out on the 20th day of June, 1913, about 1.45 p.m., at the top of the Staple-shaft. This shaft is used for the purpose of handling the output from the cage-pit seam in what is known as the iron-door level. The coal from this level is lowered in this Staple-shaft to the third seam, a distance of 126 feet, from there it is conveyed to the bottom of the third-seam slope, No. 5 level, and taken from there to the surface.

The coal is lowered in the shaft by the counter-balance system. The full box lowering takes up the ballast-weight, in turn the ballast-weight takes up the empty box, the speed is regulated by means of a brake on the drum-barrel. The drum-barrel is situated at right angles to, in a horizontal position, and at a distance of about 45 feet from the shaft. The ropes are conveyed from the drum-barrel to shaft by truss-frames and rollers, to overhead pulleys placed in frame-work of wood, about 18 feet above the level of the floor. The brake-lever is carried along this drift from the drum-barrel, a distance of 45 feet or so, and down to the floor of the level. The brake-tender stands at the top of the shaft or landing, and controls the speed of the running from that point. While performing his regular duties on the 20th day of June, 1913, he smelled wood smoke. This was often the case; because when the rollers in the slope caught fire from the friction of the rope, the smell came to him with the air. The brake-tender reported the smell to one of the deputies, and continued to run on as usual, and did not go up to examine the drum; he was watching the rope as the cage was descending, he saw smoke coming off it; he stopped the cage about half-way down, when the deputy and the brake-tender climbed up towards the drum-barrel, but was stopped by the smoke coming out of the drift from the drum-barrel. They then tried to get into the back-level by going through a door on the main-level west of the shaft. They got into the crosscut leading into the back level, but were stopped by smoke there also. The alarm was given, and buckets were procured. As soon as help arrived, they tried to get the fire out in this manner, but were unable to do so. Mr. Gillis, the manager, and other officials, and Mr. Higson, the superintendent, arrived about 2.20 p.m. By this time the fire had got a good start on them, and they saw that it would be impossible to master it by means of buckets. It was then decided to convert the compressed-air into a water-line. It took some time before

this could be accomplished, as they had to go to all the sections of the mine to close the valves in the air-line, and it was 4.45 p.m. before they got the hose and water ready. In the meantime they were still continuing with the buckets. When the water was got on, all of the officials and plenty of other help were on the spot; also a number of the fire-brigade with oxygen helmets. Those with the helmets, took the water-hose and went up over the pulleys and cooled off the timber above them. At the same time, another line of water-hose was taken in around the crosscut into the back level, fighting in towards the drum-barrel. The fighting continued for a considerable time from both ends. Those working from the shaft end, made a little advance, and by 7.30 p.m. they had advanced about 11 feet in the drift towards the drum-barrel; but little advancement could be made from the back-level side, as the smoke was so dense, it being driven in that direction by the air going direct towards the return-airway. At 10 p.m. those working from the top of the shaft had advanced in the drift a distance of about 19 feet; but the smoke overhead was very heavy and hot; the fight in the back level was still being continued, with but little success. At this time the black smoke was seen to be rolling out of the back level in clouds, and drove the men back to the corner of the cross-cut, and the flame flashed past them into the return-airway; at the same time driving those back to the shaft who were working from the shaft sides, losing all the ground that they had gained. The fire by this time had gained much headway. The timbers were nearly all burned out, and falls were taking place in the drift and in the back level. The fire had now reached into the return-airway; and it was decided, for the safety of the men, to call them out, which I consider they were justified in doing under the circumstances. After fastening the hose in position and leaving them there, the men all returned to the surface at 12 o'clock midnight; then they stopped the electric fan, which up to this time was running at full speed, as there is no arrangement by which the speed can be regulated, it must either run full speed or stop. This was badly against them in fighting the fire. Here I may say that the drum-barrel and running gear are examined daily, and were examined that day. There are also three barrels of water kept alongside the drum-barrel in case of fire at any time. There is no doubt that the fire originated from the drum becoming overheated and setting the drum-lagging on fire, it and the woden frame-work being saturated with oil. After the officials arrived at the surface, they at once got into communication, by telephone, with Mr. Evans, general manager, Mr. Delehays and Mr. Notebarre, the chief

engineer, and assistant engineer, and they arrived at the mine about one hour after, and were then informed about the condition of the mine.

My first intimation of the fire was on the morning of June 21st at about 3 a.m. On being made aware of it, I immediately went into the mine. I got there about 4.25 a.m., in company with Mr. Brown, manager of the Acadia mine. After hearing the report of the conditions in the mine, and that the fire was considered to be beyond control, a consultation was held by the management and myself, as to what would be the best method to adopt under the circumstances. From the reports which I had received from the officials as to the condition of the mine when they left it, I considered it was advisable to flood it. In the meantime I got into communication, by telephone, at 5 a. m., with Mr. Donkin, Inspector of Mines, and informed him of the fire, and asked if he could find it convenient to come up on the early train, which he did: he arrived between 11 and 12 noon. After Mr. Donkin arrived the conditions of things were explained to him, and he was informed that it had been decided to flood the mine, and that preparations were now being made to do so. At about 7 a.m. it was decided to make an examination of the condition now existing in the mine, as the fan had then been standing for 7 hours or so, to see if it would be safe to try to get out the horses, as there were 13 of them in the mine, 10 being in the No. 5 level in third seam, and 3 in No. 4 level in the Cage-pit seam, the level on which the fire was. Mr. Blue, Mr. Brown, Mr. Gillis, and myself, accompanied by several others, having the oxygen helmets on, went down and made an examination. After doing so we concluded that there was no immediate danger, and that the horses in the third seam might be got out safely. Ten young men volunteered to go down with Mr. Brown and bring them up, which they did in a very short time.

After a short consultation with the management and myself, it was decided to make an attempt to try to get the three horses which were in the Cage-pit No. 4 level. The level in which the fire was is known as the Iron-door level. We again descended, accompanied by 4 or 5 brave young men, one of which was provided with one of the oxygen helmets. We entered in by way of No. 3 level, and through the stone-drift into the Cage-pit seam, and continued northwest until we reached the top of No. 1 balance which leads up from No. 4 level to No. 3. At the top of this balance, we met with a quantity of gas which continued down the balance about 150 feet, or 3 bord-lengths. We went down until we reached No. 4



level: the seat of the fire was then about 400 feet towards the southeast of us. We thought we would like to have a look at the situation of the fire while we were so near it. We went out and examined it all around and we could smell smoke, but could not see any fire around the shaft. We then climbed up towards the pulleys and examined all around, but could not see any fire: the drift was also examined, into where a fall was, still no signs of fire were to be seen, but strong, hot, smoke, and indications of where the fire had been. We then went through a door on the northwest side of the shaft and up the crosscut into the back level, and into the return-airway; but could not see any fire, but much smoke and heat coming out of the back level, and many indications of where the fire had been.

After this examination we were of the unanimous opinion that there was a good fighting chance to save the mine by closing the top of the staple-shaft so as to exclude the air from the fire and give a tight end to fight against from the west towards the east, if action were taken quickly, as there was not any time to be lost, and the gas was accumulating very rapidly. We then returned to where the horses were taken out, and none too soon, as the gas was very bad in along this level. The horses could not have lived much longer, as the gas was gaining very rapidly, and we had been down a longer time than decided on, when we left the surface.

The horses were taken down what is known as the flat balance on to the No. 5 level, and through the stone drift to the third seam level. Here we watered them, considering them safe, at least for some time. We then returned to the surface, when a consultation was held with Mr. Donkin and all of the company's officials. After stating our opinions and the conclusions we had arrived at while in the mine, it was agreed to make an effort to save the mine. We then gave them our estimate of what materials would be required and about the number of men needed. Mr. Evans and all of the other officials got busy, and in less than three-quarters of an hour, the organization was ready, and all of the material required, loaded. I must say, that it was one of the most quickly organized parties of men, and equipped with material, that it has ever been my privilege to witness. It seemed whenever the word was passed along that there was hope of saving the mine, every official, from the highest to the lowest, workman and boys, and all began to realize what the loss of the mine meant to them, to the community, to the company and to the Province. Knowing the condition the mine was in, at the same time realizing what the loss of it meant, and our danger in again going down at this time, all were fully prepared

to take the ricks, and we went down, accompanied by as brave a lot of volunteers as could be found in any part of the world today. At 6.30 p.m., we went down the same way as on the previous trip, except that we could not get down by No. 1 balance, as it was now full of gas. The only way was down what is called the Old Iron-door slope, and a very rough road it was, and some parts of it had to be travelled on hands and knees, and all of the material had to be taken down this road. However, this was accomplished by good and willing men. The covering over of the shaft was commenced, and other details were attended to at the same time.

When all had been completed, the gas had accumulated so rapidly that it showed a cap of one inch on the lamp at the top of the shaft, when all hands were ordered out, so we went down towards the third seam to take up the horses, while the others went up by the way we came down. It was a hard struggle for any of us to get out, but it seemed as if the hand of Providence was with us, so all arrived safely on the surface, but some of us more dead than alive. After all hands had got out, as well as the horses, the steam-fan was then started slowly at about 12 revolutions a minute for sometime, so as to draw the gas off slowly, which it did, and cleared it away sufficiently in a short time, to allow the mechanical men to go down to the No. 5 level in third seam to make some needed connections to the air line at the receiver, so as to insure better water service.

In the meantime Mr. Evans, Mr. Delahays and Mr. Notebarre and the other officials were busy organizing 4 shifts of 18 to 20 men on each shift of 6 hours each, four men on each shift using the oxygen helmets. Only one man was used at a time in close range to the fire. He would be relieved every 15 to 20 minutes; this time was regulated in accordance with the existing conditions of the heat and smoke. One shift was under the charge of Mr. Higson, the superintendent of the colliery and one under the charge of Mr. Blue, superintendent of Allan-Shafts colliery, and one shift under the charge of Mr. Brown, superintendent of Acadia mine, and one shift under the charge of Mr. Gillis, mine manager of the colliery, ably assisted by the under officials of the colliery, and by Mr. Evans, Mr. Notebarre and Mr. Delahays. Mr. Donkin, Inspector of Mines, remained on the ground with us from his arrival on Saturday morning, June 21st, until Monday morning, June 23rd, he was in attendance both late and early, and his suggestions in all cases that came up for discussion were both sound and practical. After his departure I kept the Mines Department at Halifax advised by telegrams as to progress being made daily at the fire.

The fire-fight was commenced at about 8.30 p.m. on the night of June 21st, there being then four lines of 2½-inch hose, which were kept constantly playing on to the fire, and cooling the smoke as it came from the affected district. The man with the helmet always kept close up to the fire, while he was always covered with another line about 7 or 8 feet behind him. A centre partition of canvas was carried along as they advanced to where the fresh air was taken in on the one side and the smoke went out on the other side, and into the return airway; great care had to be taken in the cooling of the smoke before entering the return-airway. On Monday, June 23rd, another line of hose was laid down the slope to the No. 3 landing, and coupled on to a line of 2-inch pipes which had been laid down to the fire; a branch was taken off it and run into the stopping, which is about 20 feet east of the drift, from the shaft. As this stopping was built of combustible material, such as shale and lumps of impure coal, the management decided to build a brick stopping 18 inches in thickness, outside of the stone one, which proved to be of great service in preventing the fire from spreading towards the east; this formed a solid end to fight against from the other end. A 3-inch pipe was inserted through both of those stoppings, and the branch taken off the 2-inch line was put inside of the 3-inch pipe through the stopping, and a strong stream of water turned into the fire at the east end, and another branch of the 2-inch line was put up into the drift in the Staple-shaft, making 6 streams of water.

And still another line of 3-inch and 2-inch combined, was run from the surface down to the fire. This was the quickest piece of work that I have ever seen, nearly 3000 feet of 3-inch and 2-inch pipe taken down, strung along, connected up, and hung in 14 hours. When this line was completed, a Y coupling was used and another 2 lines of hose were put in, thus making 8 streams of water in use; 4 streams working from the west end of it, one from the east end of it, and three from the top of the shaft, thus giving a good supply of water. Good progress was made each day in combating the fire, up to the 25th day of June, when they met with a slight reverse by the flames coming back over the men and driving them back a little. However, nothing daunted the men, they nobly stuck to it, and soon overcame the lost ground again.

On the above date I made an examination of the workings all inside of the fire, and all the other sections in the mine, and found them all in perfect condition and all clear of gas. The fan was increased in speed, by this time, up to 24 revolutions a minute, as it was found necessary to carry away the smoke more speedily from

the fire, as it was very dense and hot. At this point a large fall of top-coal and shale was met with, and the fire was burning fiercely in the fallen coal. It seemed as if one were looking into the centre of a red-hot oven of coke, and the heat was excessive. The men seemed more determined than ever to conquer it and fought more energetically. At this fall a clearance had to be made so as to get past it, and the material had to be carried out in buckets,—this was done by passing it out from one to the other until a way was made through it, but all of this time there was no let up in keeping the streams of water going. As soon as a passage was made through this fall, fairly good progress was made in advance, up to Saturday evening, or some time in the night of June 28th, when they were again driven back about 50 feet, and the fire also went back on to the top of the shaft. At this time the conditions looked more serious than it did at any time, but still the men kept up the fight bravely under very trying circumstances, as the flames were sometimes coming back over them, but they stuck resolutely at it.

It was found necessary at this time to take one of the men with the helmets out on to the top of the shaft, so as to extinguish any fire which might show there. Canvas stoppings were put all around the shaft, also on the level, so as to exclude all air from getting into the fire.

A consultation was held with the management and myself, for the purpose of considering the best way to combat the serious situation which had arisen. Several propositions were put forward. The proposition put forward by Mr. Evans and endorsed by Mr. Delahays and Mr. Notebarre was the one which was finally adopted. It was carried forward with all possible speed. The proposition was to cover the top of the shaft, also ten feet on both sides of the shaft, in the level, with a slab of concrete 8 inches thick, and build a brick wall across both sides and an end wall built well into the roof, having an open archway through it 3 feet wide and 3 feet high, so as to have a passage-way for the water lines, and for the men to get to and from the fire. Work was prosecuted continuously night and day.

In the meantime, the fight was still kept up by the men under the most trying circumstances yet met with, as the small seam of cannel coal, about 5 inches or so in thickness, which is directly under the 4-foot seam which overlies the Cage-pit seam, had fallen when the timbers were burnt out, this cannel coal caught fire amongst the other coal, and as it contains a very large percentage of oil and gas, it is when burning like oil burning on the top of

water, it cannot be extinguished with water. While this was burning, the volume of black smoke was very dense and hot. On several occasions flames came out over the men, but still they stood manfully at their posts and kept the fight up, determined to conquer, and the leaders in charge of each shift were always to the front to give their men encouragement and assist at all times when any danger was apparent.

On the 3rd day of July they succeeded in getting the upper hand once more and made good progress; and by July 4th they had the fire well under control, and getting near to the drift leading to the shaft; by this time the walling around the shaft and the concreting was finished and was tested on the evening of this date and proved a success; as the men at the fire could find the change in the heat, and made their way through the drift more easily now towards the shaft. It seemed now as if the fire was nearly all out and the section needed to be cooled.

On Sunday, July 6th, "fire all out" was shouted all over from many glad hearts, as every one understood what it meant to Stelarton and to the whole community at large.

I do consider it was one of the most plucky and gallant fire-fights in the history of mining. The thanks of the whole community is due to the men who put up so good a fight for victory, and which they so effectually accomplished.

It is also very gratifying to know that such a hazardous undertaking was so successfully accomplished without the slightest accident of any kind.

In conclusion, permit me to say great credit is due to Mr. Evans, the general manager, also Mr. Delahays, Mr. Notebarre, the chief engineer and assistant engineer, for the complete manner in which the men were organized, and in looking after all supplies and attending to all of the requirements needed in the mine.

They were also ably assisted by all of the officials of both underground and surface, and not forgetting the genial office staff, all of whom ably rendered assistance in a great many ways. In fact, it was one of the best working organizations I have ever witnessed, as everything seemed to work like clock-work, and everything needed, seemed to be always at hand, there were no delays waiting for anything at any time. Every one from the chief of the staff down, worked as they never worked before, night and day, there was very little time for rest for any of them, as they were at all hours, late and early, in and out of the mine, at all times. Everyone was glad to hear the shout "fire all out."

REPORT OF COMMISSION above referred to, dated March 22, 1913.

The commission met in the company's office at 11 a.m. March 5th, and consulted with Messrs. J. Floyd, vice-president, and T. Hale, mine manager; later we visited the fire district and found good progress being made in overcoming the fire at both places then discovered. We approved of the work being done, and recommended that the same be continued.

After a careful investigation of the surrounding district and return-airways, we considered it safe, under the conditions at that time, to resume work in all places in the colliery to the south of and below the fire, which was done as fully as possible the following day, but we did not consider it advisable to then open up No. 7 south level, and to this the management agreed.

We visited this district again on March 8th, and were satisfied with the progress made, also on the 12th, when we found conditions in general much improved, and the fire discovered previously to this, well under control; but shortly after leaving the mine on this visit, a large body of fire was found in an old head about 80 feet north of the second outbreak, with apparently no connection between the three places.

On March 14th, Deputy Inspector Blackwood called the commission together for further consultation, as the fire now had developed serious proportions, and was working towards the main south return-airway. It was decided to travel through the old workings above the fire, and between it and the return airway, to ascertain their condition. This was done, and it was found that the fumes, so called "fire-stink", were finding their way through these old workings to the return-airway, being assisted in this direction by the draught of the fan.

Messrs. Blackwood and MacKenzie made a further investigation on the morning of the 15th, and the full commission met in the afternoon, when it was decided that all air-pressure should be taken off the fire and—on account of the short distance from the fire to the return-airway, as a precaution in event of the fire spreading—to build stoppings, first temporary, then permanent ones, at the most convenient points, in all openings between the fire and the return, this, the management were recommended to do at once.

The commission is of the opinion that this fire was of spontaneous origin, starting in the roof of the bottom coal, which is the

“crush” of the old workings above and the debris left therein; and although this fire has originated in this one section, we consider that this should be no detriment to the further operation of this bottom coal, along the lines, we suggest, for any new development

We recommend that this be done by a retreating system and worked in small sections, similar to panels, so that they can be quickly sealed up or built off if necessary without affecting the workings. Also, that they be kept as cool as possible by keeping an abundant supply of fresh air in circulation.

Report of E. B. PAUL, *Deputy Inspector*, on the fire in Aberdeen Slope, Springhill.

(DECEMBER 24TH, 1912)

This fire was reported at 8.30 p. m. Unfortunately a heavy fall had occurred in the main slope, which made it necessary for the men to walk down, thus preventing prompt action in dealing with the fire.

When the seat of the fire was reached, it had made such headway as to require the section to be shut off and tightly closed; it was afterwards more thoroughly isolated by building stoppings of wood laid in cement and faced with 18-in concrete, at all points leading to the fire.

On the 26th of January following, an attempt was made to open up the fire district, but after several hours effort it was made evident that fire still existed where it could not easily be reached, and the attempt was abandoned and the section sealed.

The origin of the fire still remains a mystery, and many opinions were expressed as to where and how it started. Many say the fire originated at an incline drum, where the fire was first seen, situated 2500 feet from the fan.

A searching investigation into the matter has left the origin of the fire much in doubt, as the fall in the slope caused the drum to stop running between 2 and 2.30 p. m.; men and boys were around the drum until 3 p. m., when "knock off" was called. The drum was damped down; four men were working 200 feet directly above the drum until 4.30 p. m.

At 5.30 p. m. the watchman was in No. 5 fan-drift. The air ascended from the drum to fan by the air-way at 850 feet a minute.

The fire was not the result of spontaneous combustion. These men working in the main return, would have detected, days before, during the process of partial combustion, those peculiar odors due to heating of pent-up gases under pressure, the result of disintegration of sulphur nodules or the absorption of moisture under such pressure, these men would make no mistake. It was not a result of spontaneous combustion; nor did it start from the former heating in a section of the 400-foot level.

In consideration of the theory that the fire originated from some careless act on the part of some of the men about the level, it may be said that the stable which is 50 yards west on the halfway



level, is the most likely place for a fire to be started, under such conditions.

From all evidence obtainable, the last man to pass the stable, did so, at 3.20 p. m., and as any fire originating there or elsewhere through carelessness, would have been detected when the watchman went into the fan-drift at 5 p. m.; since any such fire would break out suddenly. It is reasonable to conclude that, from all the knowledge now at hand, this theory does not explain the cause of the fire.

A careful consideration of the possibility of the fire originating at the drum, brings out the point, that although the drum was damped down at "knock off," between 2 p. m. and 2.30 p. m., there might have existed a small quantity of dust that had accumulated, resulting from the action of the iron belt on the wooden cleating of the drum, and escaped damping.

This dust would be in a heated condition, and in the light of past experiences, it seems possible that such fire might have smouldered and lain dormant for a number of hours, before it attained volume enough to be detected. Experience with fires originating from drums, makes this theory possible, as an explanation of the fire; and the lack of evidence to show any other origin for the fire, makes it not only possible, but highly probable that the fire originated as a result of the condition described.

I enclose the results of the analyses of samples of gas taken at the upcast at the Aberdeen slope every half hour, during the time the men were trying to reach the seat of the fire.

ABERDEEN SLOPE:—Time 6.27 a. m. Jan. 26th, 1913. C O<sub>2</sub>, 7.1%; O, 8.4%; C O, Nil. Time 6.55 a. m., Jan. 26th, 1913. C O, 6.9%; O, 8.4%; C O, Nil. Time 7.27 a. m. Jan. 26th, 1913. C O<sub>2</sub>, 5.00%; O, 12.50%; C O, Nil. Time 8.00 a. m. Jan. 26th, 1913. C O<sub>2</sub>, 9.3%; first appearance of smoke; O, 7.2%; C O, 1.00%.

Mine Air, Jan. 26th, 1913.—Sampled by Draegermen from fanway-stopping just previously to closing stopping-doors at 9.50 a. m. Carbon Dioxide, 12.36%; Oxygen, 5.92%, dense smoke issuing from mouth of slope; Carbon Monoxide, 2.40%; Hydrogen, 0.24%; Methane, 2.73.

Sampled Jan. 27th, 1913 at 10.30 a. m., from fanway-stoppings, 12 hours after closing again:—Carbon Dioxide, 11.33%; Oxygen, 2.10%; Carbon Monoxide, 0.60%; Hydrogen, traces; Methane, 2.40.

ABERDEEN SLOPE:—Sampled Jan. 25th, 1913 at 10 a. m., from main slope—previously to opening:—Carbon Dioxide, 11.09 %; Oxygen, 1.00 %; Carbon Monoxide, Nil; Hydrogen, Nil; Methane, 2.60 %.

Samples taken while open, on Jan. 26th, 1913, time 4.05 a. m.:—C O<sub>2</sub>, 10.67 %; O, 1.70; C O, Nil. Time 4.33 a.m. Jan. 26, 1913.—CO<sub>2</sub>, 10.20 %; O, 2.10; C O, Nil. Time 4.58 a. m., Jan. 26th, 1913:—C O<sub>2</sub>, 5.4 %; O, 11.20 %; C O, Nil. Time 5.25 a. m., Jan. 26th, 1913:—C O<sub>2</sub>, 7.7 %; O, 6.9 %; C O, Nil. Time 5.55 a. m. Jan. 26th, 1913:—C O<sub>2</sub>, 7.5 %; O, 7.5 %; C O. Nil.

# ACCIDENTS

*Coal Mines of Nova Scotia, Cape Breton Southern District, year ended September 30th, 1913.*

Date	Mine	Name	Age	Remarks
1912				
Oct. 2	Dominion	No. 2 Gasper Meulders.....	22	Miner. Fall of roof. Fatal.
" 3	"	7 James W. Beal .....	32	Overman. Struck by box. Two ribs broken.
" 4	"	2 Peter Fry .....	19	Driver. Fall of roof. Fatal.
" 3	"	2 Carnian Nicseptote....	26	Loader. Fall of roof. Fatal. [by tail rope. Fatal.
" 3	"	10 Frankowski Michael...	41	Shooter and Loader. Struck by timber. Knocked out
Nov. 6	"	2 Thomas Dean.. .....	23	Onsetter. Fell under full trip. Fatal.
" 6	"	10 Martin Shoder .....	28	Shooter and Loader. Fall of roof. Fatal.
" 6	"	2 Wilfred Ingraham...	25	Driver. Stepped under box. Two ribs broken.
Dec. 13	"	7 Sylvester Shannahan..	30	Pipefitter. Caught between roof & box. Ribs & leg broken
" 13	"	5 Allen McMullin.....	17	Driver. Caught between boxes. Skull fractured.
" 16	"	2 Dan. S. Campbell.....	35	Miner. Fall of roof. Leg broken.
1913				
Jan. 1	"	10 Piere Dalette .....	27	Miner. Fall of coal. Leg broken.
Feb. 6	"	6 Petro Geuro .....	24	Driver. Struck by box. Fatal.
" 13	"	2 John McDougall.....	16	Driver. Kicked by horse. Face injured.
" 27	"	5 Joseph Nearing .....	18	Driver. Caught by door of box. Head lightly injured.
Mar. 5	"	10 John McDonald .....	16	Driver. Fall of stone. Fatal.
" 10	"	5 Joseph McMillan .....	16	Trapper. Caught in rope sheave. Two fingers cut off.
" 18	"	2 Peter Gillis.....	20	Chain-runner. Live wire. Fatal.

## ACCIDENTS.—(Continued).

*Coal Mines of Nova Scotia, Cape Breton Southern District, year ended September 30th, 1913.*

Date	Mine	Name	Age	Remarks
1913				
Apr. 10	Dominion No. 2	Antonio Modesto.....	31	Shooter and loader. Fall of stone. Fatal.
" 4	"	Fawl Assemmather....	38	Miner. Fall of coal at face. Fatal.
" 25	"	John Morrison .....	43	Miner. Fall of stone in pillar. Fatal.
May 8	"	Canto Donnico .....	35	Shooter and loader. Pry fell on leg. Leg fractured.
" 13	"	Andrew McMullin.....	50	Miner. Fall of stone at face. Pelvis fractured. Fatal.
" 17	"	Emanuel Wells .....	41	Mason. Fall of stone. Leg broken.
" 28	"	Wilfred Andrews.....	21	Boss driver. Fall of stone. Fatal.
" 28	"	Parker Murrant.....	17	Electrician. Fall of stone. Both legs fractured.
June 2	"	John Malloy.....	40	Helper. Fall of roof coal. Fatal.
" 9	"	Archie Pyke.....	30	Shooter & loader. Fall of stone. Arm fractured & flesh wounds.
" 12	"	Dan. A. McDougall....	18	Chain-runner. Jammed between boxes. Compound fracture of leg.
" 14	"	William Laycock.....	26	Miner. Fall of stone. Arm and leg fractured and injured internally.
" 25	"	John R. McDonald.....	33	Machine runner. Fall of coal from rib. Back broken.
" 27	"	Martin O'Toole.....	30	Road-boss. Jammed between boxes. Chest & shoulder crushed
" 28	"	Jacob Bozzan.....	27	Shooter & loader. Fall of stone. Fatal.

July 8	"	"	8	Dan McDonald.....	56	Screen man. Fell over trestle. Back broken. Fatal.
" 10	"	"	2	Norman McDougall....	60	Timberman. Fall of stone. Two ribs broken, lung penetrated.
" 13	Broughton	"		David Campbell.....	44	Miner. Struck by runaway box. Fatal.
" 13	"	"		Alex. D. Campbell.....	27	Miner. Struck by runaway box. Leg broken.
" 22	Dominion No. 2	"	2	Parristto Ernio.....	22	Shooter and loader. Fall of stone. Fatal.
" 29	"	"	2	Gottleip Neumann.....	30	Loader. Fall of coal from rib. Fatal.
Aug. 6	"	"	10	Michael Slack.....	33	Shooter and loader. Fall of stone at face. Head, face and throat injured.
" 12	"	"	9	John James.....	19	Driver. Runover by box. Leg broken.
" 28	"	"	7	James Campbell.....	35	Machine-runner. Fall of stone. Fatal.
Sep. 10	"	"	2	John White.....	40	Miner. Fall of coal. Skull fractured and three ribs broken.
" 11	"	"	7	Castro Nazoff.....	30	Miner. Jammed between box and roof. Fatal.
" 13	"	"	2	James Urquart.....	36	Painter. Came in contact with bare electrical high-tension connection. Body badly burned from thighs to shoulders.
" 15	"	"	10	Michael Machuniski...	28	Shooter and loader. Explosion of powder. Fatal.
" 24	"	"	4	Howard Murrant.....	28	Machine-runner. Fall of coal from face. Pelvis broken.

## ACCIDENTS.—(Continued).

Coal Mines of Nova Scotia, Cape Breton Northern District, year ended September 30th, 1913.

Date	Mine	Name	Age	Remarks
1912				
Oct. 14	Princess	James Nuttall	18	Landing-tender. Jammed between boxes. Collar bone broken.
"	"	James C. Jackson	16	Donkey driver. Rope slipped off bottle clock. Leg broken
" 15	"	Patrick Bushar	20	Driver. Fall of stone. Killed.
" 21	Dom. No. 16	John H. A. McLellan	18	Driver. Fall of stone. Leg broken
Nov. 8	Florence	John A. Foster	25	Loader. Fall of stone. Back broken. Fatal.
" 11	Scotia	Ralph O. Noble	26	Miner. Fall of coal. Compound fracture of leg.
" 17	McKay	Dan Campbell	20	Landing-tender. Runaway box. Leg fractured.
" 25	Dom. No. 1	Guissippi Bacarro	22	Trapper. Jammed between trip and door. Killed.
Dec. 3	Princess	William Paterson	52	Miner. Fall of coal. Killed.
1913				
Jan. 6	Dom. No. 15	Antonio Zuffattee	38	Loader. Fall of stone. Leg broken.
" 20	McKay	Sam Parsons	30	Miner. Fall of stone. Leg broken.
" 29	Princess	John Harricks	16	Landing-tender. Box ran over him. Arm broken.
" 30	"	Isaac Edwards	33	Miner. Premature shot. Face and chest injured.
Feb. 17	"	A. Thomas Carrigan	34	Miner. Fall of stone. Chest and back hurt.
Mar. 15	Dom. No. 16	Dan McDonald	16	Trapper. Fall of stone. Killed.
Apr. 15	" 15	Alex Graham	35	Miner. Fall of stone. Killed.
" 29	" 14	Alexander Andreggo	42	On-setter. Struck by runaway box. Leg broken and internal injuries. Fatal.

May 7	Scotia .....	Vincent Ricleslts.....	23	Loader. Fall of stone. Killed.
" 19	McKay .....	Robert Miller.....	40	Miner. Fall of stone. Back broken.
" 29	Dom. No. 1.....	Hugh D. McDonald....	16	Driver. Jammed between boxes. Compound fracture of leg. Leg amputated.
" 31	" 15.....	Edward McLean.....	20	Cage-runner. Fall of stone. Killed.
June 10	" 1.....	Michael Curry.....	24	Machinery-runner. Fall of stone. Killed.
July 8	Princess .....	Michael McInnis.....	16	Trapper. Run over by trip. Killed.
" 23	McKay .....	Robt. Clough .....	40	Miner. Fall of stone. Head cut and bruised.
" 29	Dom. No. 12....	Redolph Colligani.....	16	Spragger. Jammed between boxes. Killed.
Aug. 4	" 12....	Dominic Peratte.....	23	Helper. Premature shot. Bruised about arms and chest lost one eye.
Sept. 5	Scotia .....	Martin Sohite.....	33	Helper. Fall of stone. Two legs broken.
" 5	Dom. No. 1....	David Ratchford.....	26	Deep-Boss. Fall of stone. Killed.
" 17	" 12....	Richard Petrie .....	38	Miner. Premature shot. Arm badly mutilated, necessitating amputation.
" 27	" 15.....	Francisco Mini.....	47	Miner. Electric wire. Killed.

ACCIDENTS.—(Continued).  
*Coal Mines of Nova Scotia, Pictou District, year ended September 30th, 1913.*

Date	Mine	Name	Age	Remarks
1912				
Oct. 10	Drummond . . . .	Charles McKay . . . . .	26	Chain-Runner. Riding-rake. Killed.
" 19	Vale . . . . .	William Boutillier . . . . .	28	Miner. Fall of coal. Ankle broken.
Nov 21	Allen Shafts . . .	George McNeil . . . . .	19	Bottomer. Struck by cage. Leg broken.
Dec. 4	Acadia . . . . .	Joseph Hatfield . . . . .	23	Rankman. Struck by empty box. Leg broken.
" 24	Allen Shafts . . .	Norman Hayes . . . . .	18	Cage-Runner. Cage on balance. Fatally injured.
1913				
June 7	Albion . . . . .	James McKay . . . . .	20	Cage-Runner. Cage on balance. Knee injured.
" 27	" . . . . .	Edward Cooke . . . . .	18	Brake-holder. Caught by rope and wound around drum. injured internally.
Mar. 27	" . . . . .	Joseph Frero . . . . .	47	Miner. Fall of roof coal. Breast injured.
Jan. 29	Acadia . . . . .	James Baxter . . . . .	44	Miner. Fall of roof. Killed.
Feb. 7	Vale . . . . .	Preston Fraser . . . . .	23	Miner. Fall of roof. Fatal.
Mar. 25	" . . . . .	Alex. McDonald . . . . .	28	Machinist. Caught on sprocket wheel. Knee dislocated
Jan. 22	Allan Shafts . . .	Edward McKenzie . . . . .	15	Tipple-Boy. Caught by hydraulic hoist. Left arm and jaw broken.
Feb. 3	" . . . . .	Arthur Penill . . . . .	19	Bottomer. Fell in shaft. Killed.
" 24	" . . . . .	William Scott . . . . .	24	Carter. Horse fell on him. Pelvis injured and arm broken.



Apl. 24	Albion .....	John McIntyre .....	52	Shiftman. Fall of coal from rib. Wrist broken.
May 15	" .....	Adolph Formeas .....	41	Miner. Premature shot. Face, body, eyes, and arm injured.
July 18	Drum'd, No. 4.	Alex. Lorimer .....	21	Driver. Caught by empty box. Leg broken.
Aug. 6	"	James Morrison .....	35	Miner. Caught by full box. Leg broken and body injured.
" 15	"	Alfred White .....	19	Sheet-tender. Caught by full box. Scalp wound, body injured.
" 12	Allan Shafts....	George Diggins .....	35	Rock Miner. Fall of roof. Compound fracture, arm.
Sep. 22	Albion .....	Fred Dobell .....	29	Miner. Fell down balance. Shoulder dislocated.
" 24	Acadia .....	John K. Nicholson .....	36	Chain-tender. Riding between boxes. Spine and body injured.

## ACCIDENTS.—(Continued).

Coal Mines of Nova Scotia, Cumberland District, year ended Sept. 30th, 1913.

Date.	Mine	Name	Age	Remarks
1912				
Nov 30	No. 2 Springhill	George Moore .....	18	Driver. Run over by rake. Leg broken.
Dec. 18	"	Moses Jones .....	58	Overman. Struck by rake in slope. Killed.
1913				
Jan. 24	"	William Newman .....	19	Driver. Between box and prop. Not serious.
Mar. 28	"	Delbert Colwell .....	19	Bottomer. Thrown off full box. Leg and side injured
Apr. 1	"	Fred Newman .....	26	Miner. Falling stone. Struck on leg.
" 10	"	Alex. McPherson .....	47	Miner. Falling roof. Broken toe.
May 2	"	James Gillis .....	.....	Loader. Falling coal. Three fingers broken.
Aug 12	"	William Gillespie .....	31	Loader. Caught between box at 4700 bottom. Killed.
Nov. 1	No. 3	Ernest Clark. ....	16	Driver. Fell off box. Killed.
1912				
Jan. 9	"	Stanley Sutherland ...	37	Shiftman. Jammed between timber. Dislocated hip.
" 21	"	John Brown .....	20	Driver. Caught between box and prop. Not serious.
Mar. 22	"	Jordon Churchill .....	45	Miner. Arm caught on coupling hook. Hole in arm.
" 27	"	Wm. B. Terrio .....	65	Lumberman. Caught between boxes. Chest injured.
Apr. 5	"	James A. Johnson .....	26	Laborer. Jammed between boxes. Broken arm.
Aug. 2	"	James L. Cook .....	37	Miner. Caught between boxes. Hip and back hurt.
" 14	"	Baker Brown .....	19	Cage-Runner. Fall of stone and coal. Back and shoulder injured.

" 25	"	"	Martin Weatherby.....	45	Shiftman. Iron boom fell on leg. Leg broken.
" 28	"	"	Thomas Harney.....	26	Miner. Struck by empty box. Leg broken.
Sept 19	"	"	George Newman.....	21	Brakeholder. Ballace-box caught his hand. Two fingers cut off.
Oct. 29	Joggins	...	Anthony Schneider...	38	Miner. Run away trip. Fracture of thigh.
1913					
Jan. 10	"	.....	John Burbine .....	40	Miner. Runaway boxes. Killed.
" 10	"	.....	James Gould.....	38	Miner. Runaway boxes. Slightly injured.
" 10	"	...	George Covell.....	24	Miner. Runaway boxes. Slightly injured.
" 10	"	.....	Emile Dortobel .....	.....	Miner. Fall of stone. Hip injured.
Apr. 9	"	.....	Albert Haig .....	35	Miner. Fall of stone from roof. Thigh broken near hip.
Sept. 5	"	.....	Frank Wilson.....	19	Driver. Car leaving rails. Sprained ankle.
" 19	"	.....	Kolen Kinicurrick....	28	Laborer. Jammed between cars. Broken leg.
May 27	Minudie	.....	Leo Gates .....	25	Miner. Falling coal. Hand injured.
1912					
Jan. 1	Lawson	.....	William Hurley.....	39	Fireman. Tube of boiler burst. Killed.

## ACCIDENTS.—(Continued).

Coal Mines of Nova Scotiæ, Inverness District, year ended September 30th, 1913.

Date	Mine	Name	Age	Remarks
1912				
Oct. 25	Inverness.....	Ferdinand Purney.....	43	Miner. Fall of coal. Back head injured.
Nov 19	" .....	Hugus Gillis.....	60	Balance bottomer. Struck by cage. Ankle injured.
Dec. 5	" .....	Timothy Roncord.....	22	Loader. Struck by prop. Head badly bruised.
" 30	" .....	Max Movet.....	58	Miner. Fall of roof. Back injured.
1913				
Jan. 10	" .....	Malcolm Campbell.....	26	Balance-cage runner. Jumped off cage. Leg broken.
" 29	" .....	D. H. McLeod.....	61	Foreman, briquette plant. Struck by fall of frozen briquettes. Fatally injured.
Feb. 7	" .....	John McKinnon.....	23	Track layer. Caught between box and boom. Hand bruised.
Apr. 2	" .....	Neil McNeil.....	21	Cage-runner. Fall of roof. Back and hips bruised.
"	" .....	John Walker.....	43	Miner. Fall of roof. Back injured.
" 5	" .....	John H. McPherson.....	17	Box oiler. Caught between box and tippie. Leg broken.
" 25	" .....	Fred. Morrow.....	47	Miner. Jumped from riding-rake. Head and foot injured.
" 25	" .....	Jules Dundoff.....	27	Miner. Riding-rake. Head cut.
May 6	" .....	Alphonse Lemal.....	50	Miner. Fall of coal. Collar bone broken, head cut and knee hurt.

June 6	"	Henry Roche .....	20	Chain-runner. Thrown off box. Face and head cut.
" 12	"	Alex. McInnis .....	21	Landing-tender. Run over by box. Bruised foot.
July 24	"	Peter McKay .....	65	Timberman. Caught between boxes. Bruised and cut on right side, shoulder and legs.
Sept. 4	"	Frank Van Parys .....	30	Miner. Fall of coal. Right arm crushed.
" 24	"	Emile Frear .....	28	Miner. Fall of roof. Dislocated shoulder, bruised leg and side.
" 25	"	Harry Poley .....	28	Miner. Struck by axe. Head cut.

## METALLIFEROUS MINES.

REPORT OF J. PAUL NORRIE, S. B., on the metal mining operations of the Province, during the fiscal year ended September 30th, 1913.

### GOLD.

From 7324 tons of gold-bearing ore mined and milled, 2365 ounces of gold were recovered. This production, valued at \$19.00 an ounce, is equivalent to \$44,935, which is an average recovery of \$6.14 a ton crushed.

A greater part of the gold came from the Caribou Gold Mines, Limited: The Dominion Leasing Co., The Switzer Mining Co., and the Petpeswick Mining Co. These mines have been running almost continuously during the year, except the Dominion Leasing Co.'s mine, which was closed down a part of the summer, due to a shortage of water. The Goldenville Mining Co., and the Stormont Mining Co., have their mills near completion, and will be mining extensively in the near future. An English syndicate, under the name of the Loon-Brook Gold Mining Co., are starting work at Montagu. But it will be well along in 1914 before any mining is done. The Boston and Goldenville Gold Mining Co.'s mine has been closed since June, but operations will be resumed in January, 1914. The Stillwater Mining Co. have not been working on account of a shortage of fuel, and thus have not produced any gold up to date. A large deposit of auriferous sulphide ore at Clyburn Brook, Inverness county, is being developed by American capital under the supervision of H. Munroe Rogers, and up to date has shown very encouraging results. All the other company's and individuals did prospecting and development work with little or no production.

The properties worked and the operators are as follows:—

Switzer Mining Co.....	Fifteen Mile Stream.
Stillwater Mining Co.....	Moose River.
Tuoquoy Gold Mining Co.....	Moose River.
J. R. McDonald.....	Moose River.
M. J. Higgins.....	Moose River.
Caribou Gold Mines Ltd.....	Caribou.
Golden Group Mining Co.....	Montagu
Loon Brook Gold Mining Co....	Montagu
Geo. J. Hiseler.....	Chezzetcook.
Petpeswick Mining Co.....	Lake Catcha.
Dominion Leasing Co.....	Tangier.

Boston & Goldenville Gold M Co.	Shier's Point.
L. A. Munger	Harrigan Cove.
Goldenville Mining Co.	Goldenville.
Stormont Mining Co.	Goldboro.
Norman McMillan	Lawrencetown.
Dr. C. C. Ellis	Miller's Lake
Alex. Greenough	Oldham.
H. M. Rogers	Clyburn Brook, Victoria Co.

The underground workings in the mines were found in good condition, all abiding by the "Regulations of the Metalliferous Mines."

The gold mining industry of the Province, owing to supposed superior inducements in other parts of the Dominion, has not for some time past been giving the good results of former years. There is at present a brighter outlook,—practical men with capital, well acquainted with modern methods of gold mining and gold extraction, are now looking carefully into this matter in this Province, and some have found it attractive enough to begin operations for development on a large scale.

The water powers of the Province will to a greater extent than in the past, be used to run mining machinery, which should cut down the cost per ton for mining and gold extraction, and overcome the fuel problem.

In former days of Nova Scotia gold mining, unless the ore was extremely rich, the mines could not be made to pay, but today certain mines in the Province are working the ore which does not run one ounce to the ton, and are paying big dividends.

Numerous samples from one of the old dumps were recently sent to London for analyses, and were found to contain an average of more than one ounce to the ton.

The Nova Scotia gold fields will, when the eastern branch of the Intercolonial Railway is built, have the advantage of better transportation facilities. Before this, many of the mines east of Halifax were far from any shipping centre, and thus found it was difficult to get supplies and machinery to the scene of operations.

A detailed report on the different districts is as follows:—

### IRON.

The Dominion Iron Corporation worked their mine at Torbrook up to Aug. 15th, 1913, when the mine was closed down. 10,442 tons of ore were mined and concentrated. There are three

veins in the district, each of which are approximately 13 feet in thickness, only two of which have been worked. One is red hematite, and the other shell ore. The concentrates were shipped at Port Wade, a distance of 35 miles from the mine by the Halifax and South Western Railway.

### *ANTIMONY.*

The West Gore Antimony Company have not been working during the year, but have kept their buildings in repair, and intend to operate in the near future.

### *TIN.*

Much interest has been taken in a partly proved tin deposit at New Ross, Lunenburg county. Sufficient development work has not been done on this property, but every indication of tin is found; a large area is now held under lease and license to search. An American syndicate intend to operate the property shortly.

### *BARYTES.*

The Barytes Limited, operating at Scottsville, Inverness county, have placed on the market 700 tons of refined barytes. They have spent much time on a new process for the manufacture of baryte, and a better method of refinement has been successfully applied to the ore, by which it can now be more easily and commercially treated.

### *MANGANESE.*

No manganese was mined in the Province during the year, but considerable prospecting has been done for the mineral, and several mining areas have been taken up.

### *TUNGSTEN.*

Ten tons of scheelite were shipped during the year from Scheelite Mines Limited, Moose River. No mining is now being done there, but extensive development and prospecting are being carried on by the company. Prospecting for the mineral has been done in Queens county and other places in the Province.

### *OTHER MINERALS.*

While search has been made for copper, lead, zinc, molybdenum, and silver ores, no finds of any value have been recorded.

Detailed reports on the tungsten and baryte mines immediately follow the gold report.



## QUEENS COUNTY.

Switzer Mining Co. E. S. Henley, manager; Forrest Dowell, foreman.

An average of 25 men has been employed during the year.

*Production.*—From 793 tons of ore mined and milled 343.71 ounces of gold have been recovered.

A new shaft was started on the Lowe lead, about 300 feet east of the old Lowe shaft. It is now 175 feet deep, and is 7 feet by 11 feet in cross section. This shaft is well timbered, and has a good ladderway. At the 75-foot level, a drift was run 300 feet east and west, and a cross-cut 77 feet north, to locate new leads, but nothing of any value was discovered. At the 125-foot level there is a cross-cut 300 feet east and 200 feet west. Two raises were driven from the 125-feet to the 75-feet level. Little or no stoping has been done.

The following machinery has been installed:—

Two 65 h. p. boilers.

One 25 h. p. hoist.

Two duplex pumps, 6x4x6.

One sinking pump, 7x3½x12.

One supply pump.

One 2¼ rock drill.

Two 2¾ machine drills.

One skip, capacity 1 ton.

All work is now confined to the sinking of the new shaft. All drifts are dammed to keep the water from entering the shaft. When the shaft reaches 200 feet, a set of drifts will be started and the whole mine opened up and thoroughly developed.

The Lowe lead has been located east of the break, and is 4 feet thick here. A shaft 50 feet deep has been sunk and drifts driven in 100 feet east and west. A small shaft was sunk on the Shaw lead, showing good results.

A shaft-and-power-house was built at the new shaft, and a small shaft-house over the prospecting pit. A new manager's house is near completion.

The company, due to favorable reports of many eminent mining men, have very confidence in the future of the mine.

## HALIFAX COUNTY.

## CARIBOU.

Caribou Gold Mines, Limited. Holman Mine. Harry F. Ross, C. Vey Holman, managers; G. H. Lawlor, foreman.

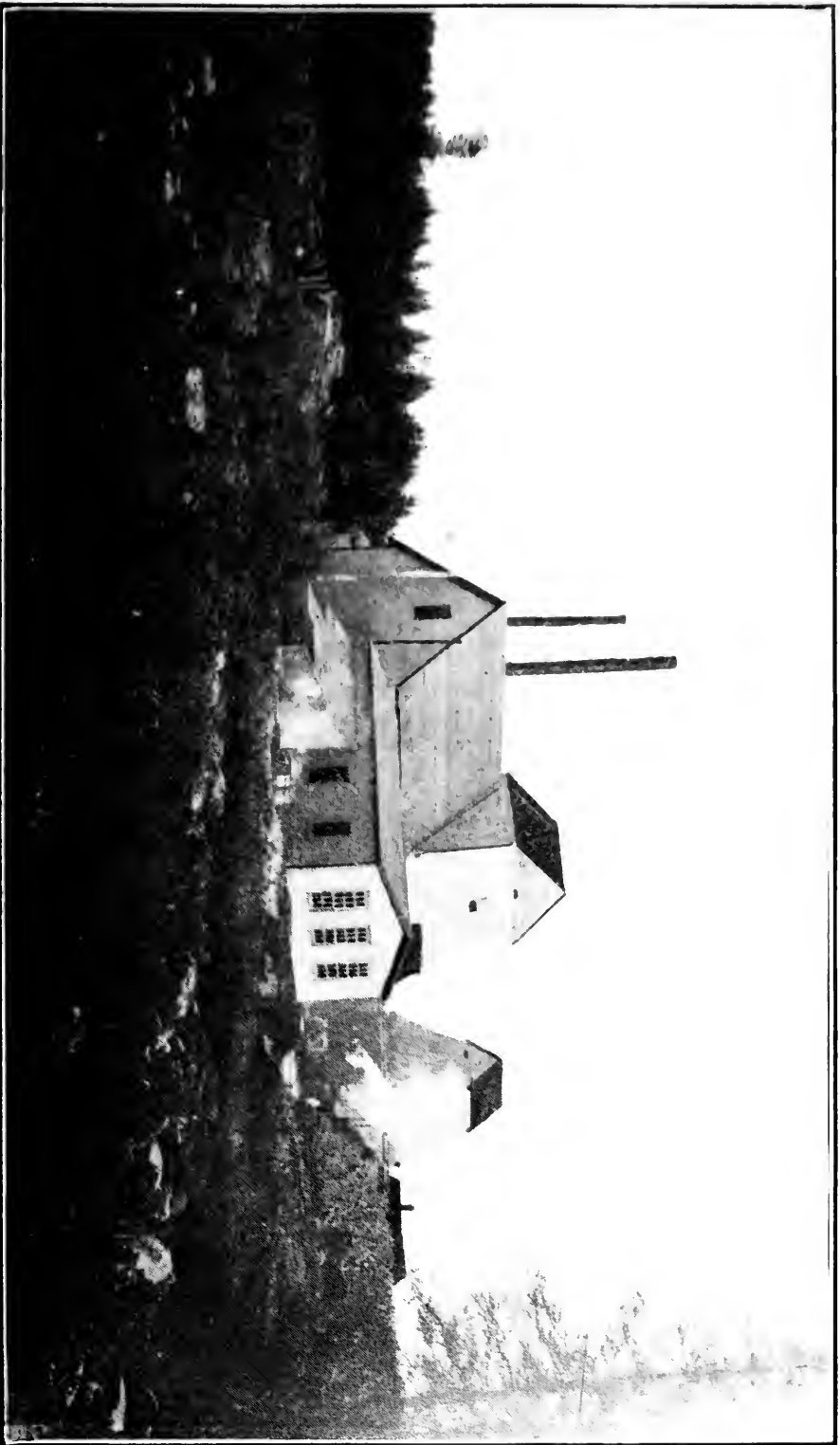
Average number of men employed, 45.

*Production.*—From 687 tons of ore mined and milled, 459 ounces, 6 dwt. of gold, have been recovered.

*Underground.*—No sinking has been done on this property, the Holman shaft being at present 146 feet deep. A drift 170 feet long was driven west from the Holman vertical-shaft on the 100-foot level, completely around the nose of the anticline. Other drifts of a smaller character were driven in the mine. The mine is very complex, and owing to the elliptical contour of the various levels around the anticlinal dome, it is not always easy to distinguish a drift from a cross-cut. A cross-cut was driven on the B and C veins in a superstope between the 100-foot and 40-foot levels, 250 feet in length. Other small cross-cuts of less importance were driven for prospecting. Three upraises were driven from the 100-foot level to the 40-foot level.

*Stoping.*—A section, 40 feet by 8 feet, was stoped out on the north leg, west plunge of the B and C veins on the 40-foot level. Stoping was also done on the north and south legs of the B and C veins on the 100-foot level. The dimensions of the ground stoped being 50x12x8 feet and 225x220x8 feet. Rhodocrosite ( $\text{Mn Co}_3$ ) was found in connection with two angulars crossing the bedded leads, and the discovery is significant as being the first identification of this mineral in Nova Scotia gold-bearing rocks. The presence of this mineral in gold-bearing formations generally indicates the presence of rich ore in the near vicinity, and its presence has been regarded as of notable significance when occurring as a gangue mineral in some of the most famous North American gold mines, such as the Tomboy and Camp Bird, and in many of the richest mines on the Mother Lode of California.

*Surface.*—The buildings have been repaired to the extent of \$400.00, and two new five-stamp batteries have been installed, the old 750-lb. being replaced by 1000-lb. stamp. The ore from the mine goes direct to a sorting deck, where all the waste rock is taken out. It is then shoveled into an ore bin and fed by gravity, to the stamps. The tailings from the stamps pass through a launder to two wilfley tables. The wilfleys take out all the heavy sulphides



CARIBOU.—Surface equipment, Flat Leads and Holman shaft, Caribou Gold Mines, Limited.



containing the arsenic and gold. The tales go to waste, carrying with them less than 25c. per ton in gold.

The concentrates are shovelled into a storehouse built for the purpose, and will be kept there until cheap transportation warrants the shipping of them to Germany, for their arsenic and gold values. Leading German ore-dealers are already in treaty for their purchase.

Three 2½ air-valve drills were installed.

Steam power is used at the mine. 3000 cords of wood were used as fuel in the year.

The mine was found in excellent condition, the ideal development of an anticlinal dome so long theorized about by mining experts in connection with the development of Nova Scotia gold fields having here been worked out with remarkable precision and definite adherence as to well-ordered and systematically conducted mining procedure, under the engineering direction of Hon. C. Vey Holman, formerly State Geologist of Maine.

Caribou Gold mines Limited. Dixon Mine. Harry F. Ross, C. Vey Holman, managers; H. Dixon, foreman.

*Underground.*—The Dixon mine, which was a good producer for years on the old Dixon fissure-lead, has been completely dewatered and successfully placed in production. This fissure-lead cuts the anticlinal fold in a northeast and southwest direction. The present lengths of drifts in the mine are from 125 to 140 feet east and from 70 to 80 feet west. The 100, 200 and 300-foot levels are now being driven east into new ground, and the workings of this mine will eventually connect with those of the Holman mine. About 75 feet of drifting in each of these levels has been done since the opening of the mine. There are two shafts at present on the lead, the east shaft, 328 feet and the west 353 feet, deep. All the working faces are in high grade ore.

*Surface.*—A head frame 35 feet high connected with a ten-stamp mill has been erected on the east shaft. The ore from the mine which will all be raised in the latter shaft, will pass directly to this mill, and all that cannot be conveniently handled will be treated by a five-stamp mill at the west shaft, which has already been put in commission. The buildings on the west shaft have been repaired to the extent of \$200.00. A hoist, made in Liverpool, England, a 25 h. p. boiler, and a new hoisting rope ⅝ inches diameter and 400 feet long, have been installed at the east shaft, and a 35 h. p. boiler, and a new hoisting rope ⅞ inches diameter and 400 feet long, have been placed in the west shaft.

A new 6x4x6 duplex pump has been installed in the mine.

An average of 18 men is now being employed at the mine.

This mine is to be thoroughly equipped and run on up-to-date methods. The development work is now held back to a great extent, due to the scarcity of help.

---

#### LAWRENCETOWN.

McMillan-Dexter Gold-Mining Properties; Norman McMillan, manager.

This district lies to the east of Halifax, on the western side of Gannon's Lake, a distance of ten and one-half miles from Halifax harbor.

The first finds of gold were made on the Partridge River. The area over which rich quartz, flint and boulders have been found, extends for several miles both east and west of Partridge River, as will be shown by the geological maps and those of the department of mines of Nova Scotia. The two objects worked out by Mr. McMillan were the proving of the continuance westward of Gannon's Lake of the two main lines of mineralization, as occurring on the Shanghai and Burns properties. The result has been the locating of several quartz ore-bodies, showing free gold and sulphide metals, that may be easily handled by the ordinary methods of amalgamating and cyaniding.

*Ore bodies of the district.*—The district is still in the prospecting stage. Thirteen surface shafts have been sunk to a depth of 13 feet, beside tunneling on the bed rock, and sinking 14 feet on the leads to prove their value. There is a large zone of gold-bearing veins following the anticlinal going west from the Shanghai range. Seven leads, varying in width from 2 to 7 feet, have been uncovered, with a promising outlook for many more, due to the large amount of rich drift scattered over the property. In sinking on the ore bodies it is found that sometimes an ore body increases to several feet in width, or several outcropping bodies come together, making large and easily-mined masses of good milling quartz ore. This widening of the ore-body is known by prospectors as a "roll." It is found that over a considerable section that these "rolls" have a dip and direction corresponding to the line of the "deposition of values," and in the body of the vein they lie one below the other in parallel formation.

This district is made up of two properties, known as the North and South properties.

The Northern property is a location of outcrops of quartz lodes in the western extensions of the Shanghai group of ore bodies. The prospecting work is still going on for the purpose of locating the ore bodies indicated by the boulders found west of the lake. On area 643, original block 5, outcrops have been located. These show an aggregate of 12 feet of quartz. The property held by the owners extends 1650 feet along the course of the vein formation, and has a lateral width, north and south, of 500 feet.

The southern property lies at the foot of Gannon's Lake, extending westerly from the western line of the Burns property, a distance of 3450 feet on the course of the vein in the discovery shaft. The lateral width of this location is 1000 feet. The discovery shaft is 90 feet deep, and has demonstrated the presence of a large amount of ore. At a depth of 60 feet, a roll or ore-shoot, with a width of five or seven feet, was demonstrated between the 60-foot level and the bottom, other quartz-ore bodies in the form of spurs connecting with the vein, are found. The large roll at the 60-foot depth has its apex and outcrop 70 feet west of the discovery shaft.

In a distance of 100 feet, south of the discovery shaft, are five other outcrops of quartz-ore, and apparently connected with the apex of the vein in the discovery-shaft.

These outcrops in a distance of 79 feet show an aggregate of  $6\frac{1}{2}$  feet of ore, carrying free gold and valuable gold contents in the sulphide metals. From this association in the apex with the vein in the discovery shaft, it is expected that these quartz lodes will join the principal vein in the line of "the deposition of values" in the range passing through the McMillan-Dexter and Burns properties.

*Assays and mill tests.*—The appearance of the ore from the discovery shaft on the McMillan-Dexter property, is generally estimated to be that of one ounce ore to the ton of quartz. The gold being fine, is easily recovered by amalgamation or cyaniding. A mill test in an ordinary working amalgamation crusher shows the value to be one ounce per ton. Such values, coupled with favorable mining conditions and proper milling methods, should bring about rich dividends.

*Proposed work.*—The discovery shaft is to be retained as the main working shaft of the property, from which all underground

work is to be laid off. This shaft will be sunk deeper to determine the positions and distances of other "rolls" coming into the workings below the 60-foot level.

A cross-cut will be driven south to show up the veins and ore bodies. A slope is to be driven from the apex west of the discovery shaft, to the eastward to block out the roll at the 60-foot in the shaft, and continued eastwardly toward the eastward end line to block out the ore above the line of the slope.

A small party of prospectors are to be kept employed to locate other veins on the property indicated by the good float to be seen on the surface.

A head of water, capable of producing 40 horse-power, is available near the discovery shaft, which would make the cost for power low.

---

#### TANGIER.

Dominion Leasing Co. W. J. Prisk, manager; W. E. Prisk, foreman; Alonzo Zwicker, foreman.

An average of 42 men has been employed during the year.

*Production.*—From 2900 tons of ore crushed, 677 ounces, 16 dwt., of gold were recovered.

*Underground.*—The mine was closed down, due to a shortage in water, from August 9th to October 15th.

The shaft is now down 635 feet. No sinking was done during the last year.

The present lengths of drifts are as follows:—600-drift east 239 feet; 500-drift west 311 feet; 500-drift east 372 feet.

Last year's drifting consisted of:—239 feet east on the 600-foot level; 135 feet west on the 500-foot level; 10 feet east on the 500-foot level.

All the stoping was done between the No. 5 and 6 levels. The dimensions of the ground stoped, being 126x110x3 feet and 46x64x3 feet.

A cross-cut is to be driven north and south through the entire property, for the purpose of opening up new leads.

*Surface.*—A 12-inch exhaust ventilating fan is to be ordered for the installation of an artificial ventilating system, with an outlay of \$1500.00.

The intention of the company is to thoroughly develop the property.



## MONTAGU.

The Golden Group Mining Company have been working on the Holly lead and on the Nugget lead on the Montreal property, with T. N. Baker as manager, employing an average of five men during the year.

*Production.*—94 tons of ore were mined and put through the Nova Scotia Gold Mines Company's mill, giving 18 oz., 16 dwt., of gold.

*Holly Lead.*—A shaft 100 feet deep was opened up, and 100 feet of drifting done. A small shaft-house was built over the shaft.

*Nugget Lead.*—A shaft was sunk about 50 feet deep, taking about three months, and a drift 150 feet run, in order to find the strike of the lead. A small amount of underhand stoping was done, and a shaft-house was built.

Thirty-five tons of dump were put through the mill, but only a small amount of gold recovered.

The Loon Brook Gold Mining Co. E. S. Romilly Smith, manager; W. R. Bateson, resident engineer.

The Loon Brook Gold Mining Co. have obtained an option on the Simon-Kaye areas, and the manner in which the company intend to develop the mining properties held by them is as follows:—

They propose to sink shafts, widen a certain number of the existing shafts, and sink a number of inclined tunnels on the outcrops of various leads for the purpose of proving the lodes. The milling, roasting and cyaniding plant that is being erected, is for the purpose of dealing with—

(1) A considerable quantity of arsenical tailings which are in close proximity with the mill.

(2) A very large quantity of dumps that are scattered over the property.

(3) Also all the ore that will be mined.

They are installing a new up-to-date plant, comprising among other treatments, the following:—A concentrating and cyaniding plant, supplied by Messrs. Fraser & Chalmers, of London, England. The pulp after leaving the mill flows over the latest type lock-up. Amalgam tables of the rand-pattern merge into hydraulic classifiers, where it is distributed to Frue-Vanner tables and No. 6 Wilfley concentrating tables.

The concentrates are collected and roasted in a reverberatory furnace, and then carried into a rotating-grinding pan, where, they are ground with mercury and a solution of cyanide of potassium, the overflow runs over an amalgam-table, through mercury traps and agitators, where it is thoroughly stirred up with the gold in solution being decanted off into gold-solution tanks and through extractor-boxes, from which it is treated in the usual way with filter presses, and clean-up plant, and is then smelted into bars.

---

#### LAKE CATCHA.

Petpeswick Mining Co. T. J. Partington, manager. A. M. Anderson, foreman.

An average of 30 has been employed, 20 of which worked underground and 10 above.

*Production.*—From 1185 tons of ore mined and milled 354 oz. of gold have been recovered.

*Underground.*—All work was done on the No. 2 level of the Coleman lead. No further sinking was done on the shaft, its present depth being 520 feet. The No. 2 level is 300 feet from the surface. The east drift is now 360 feet in length, 113 feet was taken out in the last year. The west drift is 354 feet long, of which 57 feet was driven last year. From the west drift, 35 feet west of the shaft, a cross-cut has been driven south on what is known as the 7-foot fault, for the purpose of prospecting the group of veins known to occur south of the Coleman lead. This cross-cut is 420 feet in length; eleven leads have been cut, varying in thickness from  $\frac{1}{2}$  in to 4 inches. An area 200 feet long by 100 feet above the level and 5 feet wide, has been stoped out on the east drift. No stoping was done on the west drift.

Three hammer drills were installed in the mine.

*Surface.*—From 6 to 10 men have been employed during the summer, prospecting the property to the north and west of the Coleman lead on what was formerly the Anderson property.

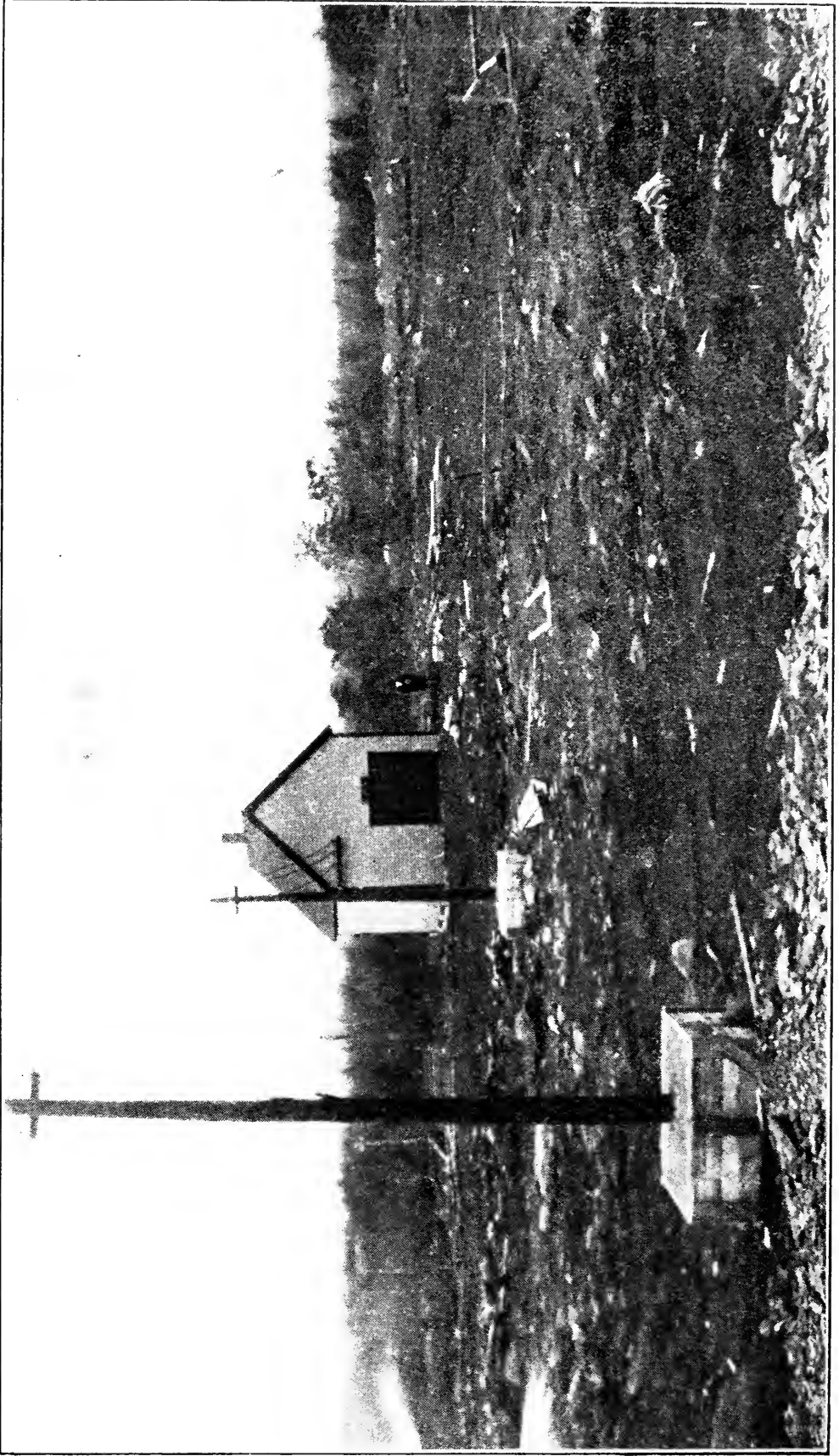
The mine was found in good condition, and has been operating continuously during the year.



**TANGIER..—Kent Lead face of 500 feet level East,  
Dominion Mining Co.**







Transformer House, Goldenville Mining Co.

## CHEZZETCOOK.

George J. Hiseler.

An average of ten men was employed during the year. All the work so far done on this property has been in the line of prospecting, by sinking various shafts on the strike of the leads, and timbering the ones most likely to be used later. The leads worked on, were the Hiseler lead, Golden lode, Eastern Railroad-lead, and Rich lead.

*Hiseler Lead.*—This lead has been prospected four hundred feet along the strike and shows free gold continuously, but no assays have yet been made on the ore to determine its gold value. Hand-power has been used in sinking the shafts, one of which is 25 feet deep, well timbered, and will be used later for mining. The lead is 15 inches thick, and is supposed to be a fissure.

*Golden-Lode Lead.*—This lead occurs in a slate belt, in which twelve other leads have been found, varying in thickness from one inch to two feet. A fifty-foot shaft, sunk in 1910, was timbered this summer. The inside dimensions of the shaft being 4 feet 6 inches by 12 feet. A surface cross-cut 40 feet long has been run at right angles to the main lead to cut the other leads mentioned above.

*Rich-Drift Lead.*—A prospecting shaft has been sunk 10 feet deep. Two other leads have been cut in the slate belt, which is 8 feet wide. Prospecting has been started on the Eastern Railroad lead, which was first opened up by a rock-cut on the Eastern Railroad. Mining operations are to be started as soon as buildings are completed and machinery installed. Gasoline power is to be used for running a ten-stamp mill.

## SHIER'S POINT (MOOSE HEAD).

Boston & Goldenville Gold Mining Co. L. A. Munger, manager;  
William Shiers, foreman.

An average of 30 men was employed.

*Production.*—Out of 407 tons of ore crushed, 21 ounces of gold were recovered.

*Underground.*—No further sinking was done in the shaft, the present depth being 200 feet. The drift on the Hulk-lead was extended 100 feet west. The present length being 200 feet west and 150 feet east. 125 feet of cross-cuts were also driven. All the stoping was done on the west drift, a portion 50x25x8 feet being stoped out. The mine was closed down in the latter part of June, due to a report of A. E. Hassan, that the ore was too low grade to be mined commercially.

*Surface.*—The mill was generally repaired, and new pulleys and shafting placed. The ten-stamp mill, which was originally run by steam, has been connected with the water-wheel. The steam-power is to be used as an auxiliary, hereafter. The flume was raised 6 inches and covered with new planks.

65 tons of coal and 100 cords of wood were consumed.

The management reports that the company propose to open up the mine in January, 1914, and carry on prospecting and development work, previously to extensive mining operations.

---

#### HARRIGAN COVE.

St. Anthony Property. L. A. Munger, manager.

The St. Anthony Gold Mining Company's property was bonded by L. A. Munger. Work was done on the O'Brien-Borden, West and South shafts.

*O'Brien Shaft.*—This shaft was sunk 10 feet, thoroughly re-timbered, and 100 tons of ore taken out. A new shaft-house was built.

*Borden Shaft.*—A new shaft-house was erected, and the shaft re-timbered.

*West Shaft,* now 103 feet deep, was pumped out and re-timbered.

*South Shaft.*—This shaft was sunk 5 feet and put in condition. A cross-cut was started, and work will be resumed on it when the mine is again opened. The 75 h. p. boiler and 50 h. p. engine were repaired in the Truro mill and a new smoke-stack placed. The ten-stamp mill was generally overhauled and new shafting, shoes, dies, and plates put in.



## OLDHAM.

Alexander Greenough.

An average of 8 men has been employed. . .

*Production.*—From 135 tons of ore mined and treated, 111 oz., 17 dwt., of gold were recovered. Work is being done on the 2-inch Greenough angular which joins the Brausard lead on the Big Five property. A well-timbered shaft is now down 65 feet, and a drift run 40 feet west and east 270 feet. All the ground above the drift is stoped nearly to the surface. The ore and water are taken from the mine in buckets with the aid of a horse-whin. The ore is crushed in the Brennan mill at \$1.50 per ton. A lot of prospecting has been done, but no new leads have been opened up. A new shaft-house was built on the property. .

John Greenough and Joe Gardiner are also working on the Greenough angular. They have a shaft sunk 25 feet deep, and are getting good ore. Alex. McDonald has been prospecting on the Bonanza property with poor results.

## MOOSE RIVER.

Reynold Areas. J. R. McDonald, manager and foreman.

Average number of men employed, 3.

*Production.*—From 100 tons of ore mined and milled 111 ounces of gold were recovered. All the mining done on this property was by open-cut on the surface. No ore of commercial value could be found.

Touquoy Gold Mining Co Robert Kaulbach, manager; H. H. Higgins, foreman.

An average of 3 men was employed.

*Production.*—25 ounces of gold were recovered from 100 tons of ore mined and milled.

*Underground.*—The present depth of the Britannia shaft is 180 feet, and work was done on the 80-feet level. The east drift is now 40 feet from the shaft and the west drift 73 feet, 53 feet of which was driven: in the last year, an upraise of 10 feet was driven and a section of ground 20x10x8 feet was stoped out.

Work was also done on the 80 foot level of lead No. 3. The depth of shaft being 160 feet. The drifts are now 73 feet west and 20 feet east. All of the east drift was made in the last year. A cross-cut is to be driven north from the vertical shaft for exploration purposes. At the time of my visit, the mines were closed down.

Stillwater Mining Co. Clarence H. Johnson, manager.

An average of 4 men has been employed, 362 days' labor having been performed. No work was done in the mine from September, 1912, to June 5th, 1913. The mine was closed in September, due to a shortage in fuel. During the winter of 1913 the company purchased 595 acres of woodland, and a large supply of cord-wood is now on hand. The company propose using water-power in their mill, and purchased a water-power site. The work since June 5th, 1913, has been pumping out the mine, and getting ready to proceed with the development of the ore bodies.

#### *Other Work.*

On the Montreal property, Matthew J. Higgins sunk a shaft 10 feet deep, and drove a 15-foot drift and a cross-cut 15 feet from the shaft. An average of 3 men was employed—235 days' work has been done, 30 tons of ore were taken from the mine, and out of 17 tons of ore treated, 8 ounces of gold were recovered.

---

### GUYSBORO COUNTY.

#### GOLDENVILLE.

Goldenville Mining Co. Arthur F. McNaughton, manager; Joseph Mason, foreman.

The mine was pumped out in August, 1913, and work started on the power-house on the Liscomb River and on the mill.

A double-compartment shaft now sunk on the Palmerston belt, will be used, one compartment for hoisting ore, and the other for lowering timber and as a manway. The mine is to be kept clear of water by electric turbine-pumps. Three hammer drills are to be installed. The ore from the mine passes over a grizzly. The oversize from the grizzly goes to a Blake-breaker, then the whole is elevated on a 40-foot incline tramway to the mill-bin, ready to be taken by the 40-stamp mill, which is capable of handling 120 tons per day.

*Power House.*—A dam was built at Liscomb Falls, with a head of 40 feet; a second dam three-quarters of a mile farther up the river, with a head of 15 feet, was built. This water will be used as a reserve supply. A new flume 220 feet long, 13 feet wide and 9 feet high, with a penstock 70 feet long and 8 feet in diameter, was built, leading to the water-wheel. Two generators, 300 and 200 h. p., 440 volts, were installed in a previously built power-house.

*Mill.*—The mill, which was partly built before, has been completed, and the following machinery installed:—

- 1 duplex air compressor, 16x24 inches, to run 12 drills.
- 1 induction motor, 200 h. p., 244 amp., 3 phase, 440 volts.
- 440 volts.
- 2 induction motors, 50 h. p., 3 phase, 440 volts.
- 40 stamp-mill castings.

Machinery in power-house—auxiliary equipment:—

- 1 steam hoist, 48-inch drum, 50 h. p., 10x12-inch cylinder.
- 2 boilers, 70 h. p.
- 1 engine 40 h. p.
- 1 Blake-type rock-breaker, 9x12 inches.
- 1 bob-pump, 3-feet stroke, 6-inch cylinder, 16 to 18 strokes per minute.
- 1 steam-driven air-compressor, capacity 540 cubic feet per minute, to run 5 drills.
- 1 electric turbine pump, bronze impellers, capacity 400 gallons per minute, is to be installed in the mine.

The power is generated at Liscomb Falls by two generators at 440 volts, stepped up to 1100 volts and transmitted to the transformer-house, where it is stepped down to 440 volts. The current is then led into the mill and used through a 200 h. p. motor to run the air-compressor and through 2 50-h. p. motors to run the 40-stamp mill. A small electric turbine supply-pump is also to be run from the same current. A portion of the current to the mill is stepped down to 110 volts for the lighting system. A branch is also led to the power-house to run the mine pumps, electric hoist, and a small motor connected with the Blake-breaker. No work was being done in the mine at the time of my visit, but extensive mining operations will be started as soon as the mill is in condition.

## MILLER'S LAKE.

Dr. C. C. Ellis has been doing extensive prospecting in this district, in order to locate new leads, and find out which of the leads already discovered could be worked commercially. An average of 6 men has been employed.

The leads already found are:—

Naugler lead, 12 inches in thickness.

Mill lead, 12 inches in thickness.

Lonecloud lead, 10 inches in thickness.

Little Rusty lead, 6 inches in thickness.

Little North lead, 9—10 inches in thickness.

Twin leads, 2 and 3 inches in thickness.

A shaft 16 feet deep was sunk on the Lonecloud lead and timbered. Two tons of quartz from this lead were crushed and 1½ ounces of gold recovered. Similar work was done on the Little North lead, and very good results obtained. This lead will probably be the one worked when operations start. Work was done on the Twin and Little Rusty leads, but very little gold found. The mill is being fixed up, and machinery is to be ordered for the mill and mine. The road leading to the mine is in very bad condition, and will have to be repaired before machinery can be taken over it. This appears to be an extremely good property, and in a few years we will probably see it a good gold-producer.

---

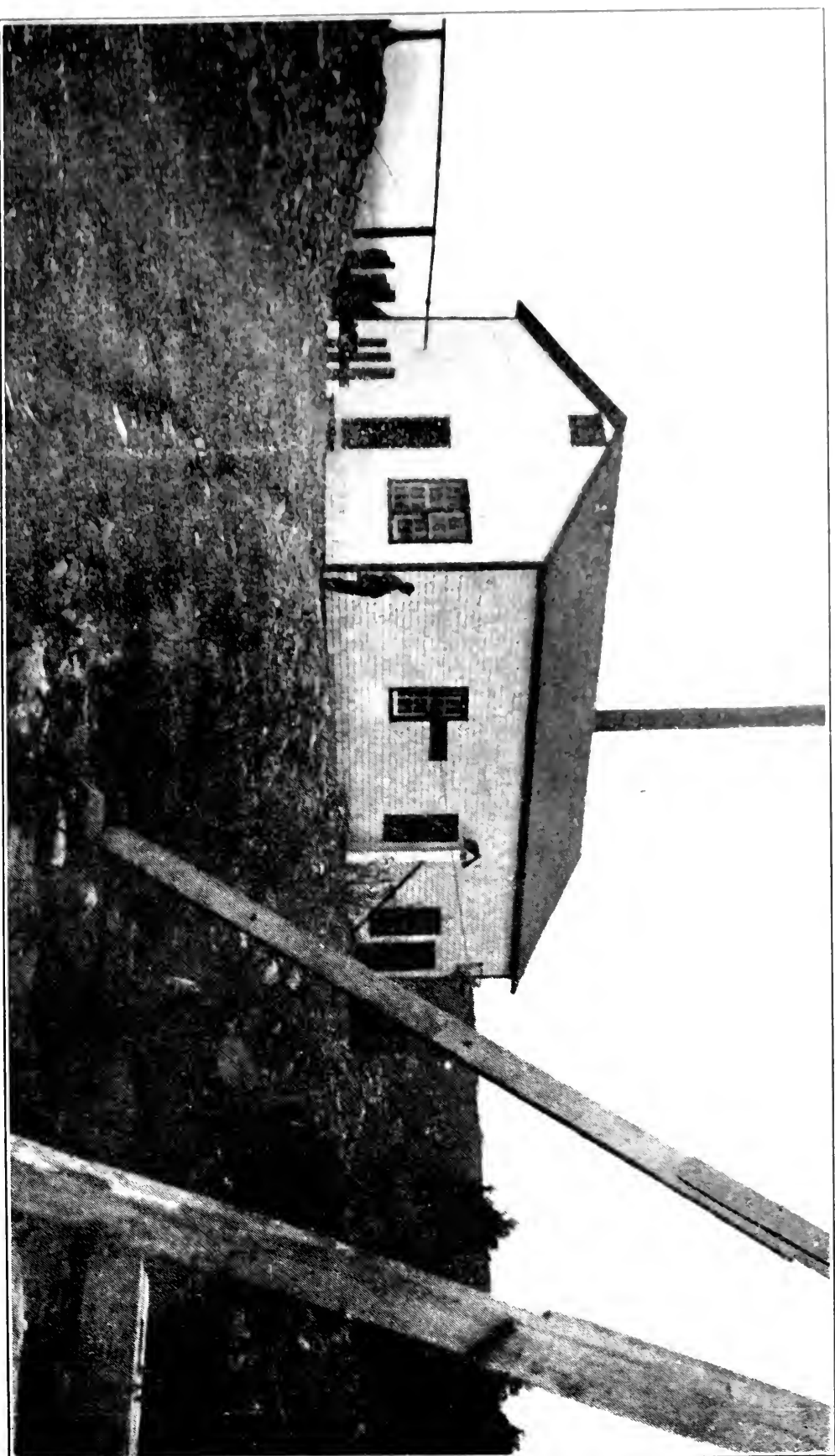
GOLDBORO.

Stormont Gold Mining Co. George McNaughton, manager; Wm. Mason, foreman.

Since work was started on January, 1st, 1913, 936 days' work have been done above ground, 1872 days below, in connection with the mine, and 2000 days on construction.

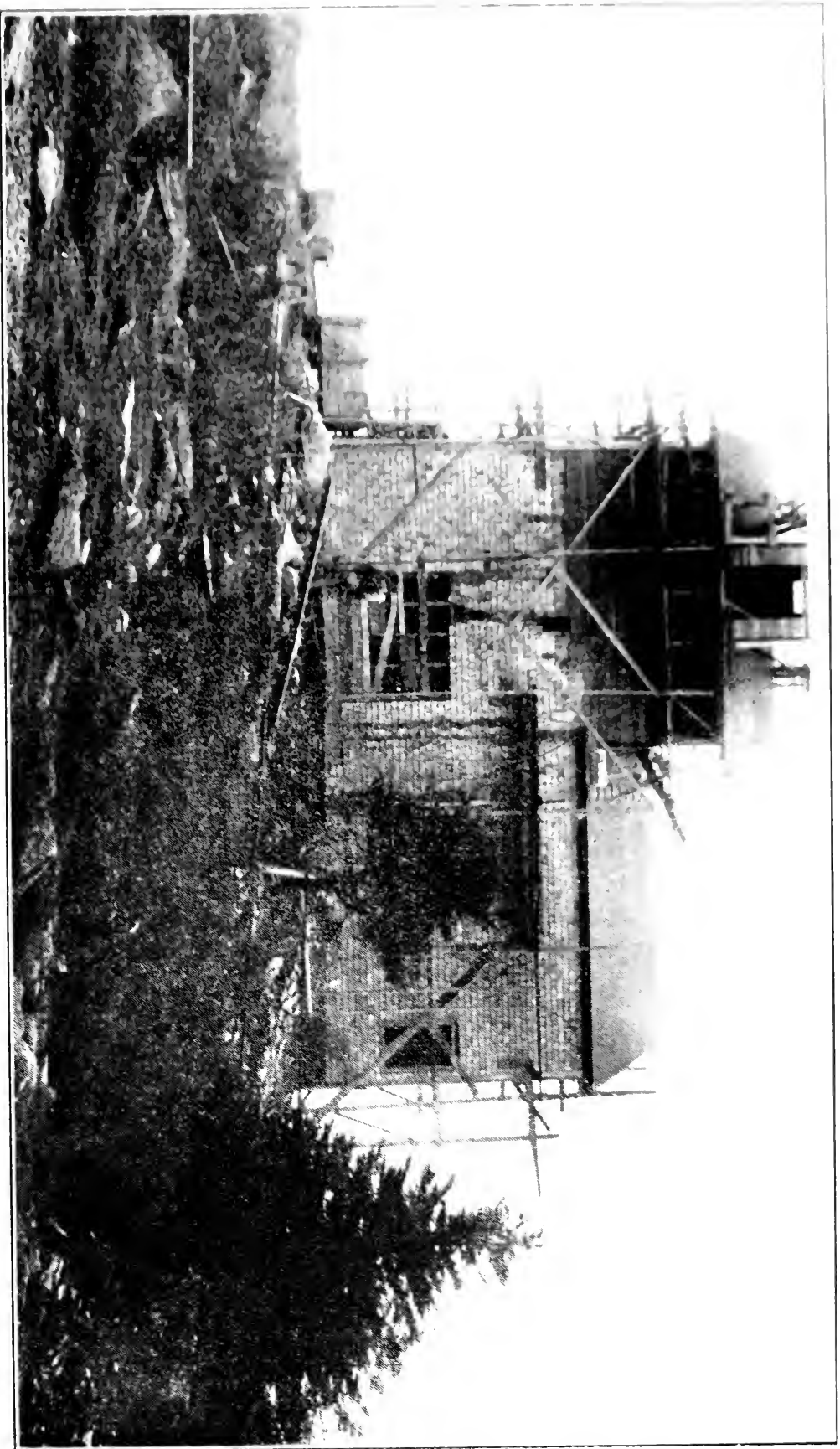
An average of 24 men has been employed.

No. 1 shaft on the Mulgrave lead was first pumped out, then Nos. 4 and 6 were unwatered. A drift was run connecting these shafts a distance of 450 feet, and was continued east 400 feet from No. 6, connecting with shafts Nos. 7 and 8. Shafts Nos. 4 and 6 were each sunk about 12 feet. The present depths are now 262 and 220 feet respectively.



Power House, Stormont Mining Co.





Mill Building under construction, Stormont Mining Co.





Shaft No. 6 is kept clear of water by a 6x4x6-inch duplex pump, and No. 4 by a 6x4x7-inch duplex pump.

Two machine-drills have been ordered for the mine, but stoping is to be done with hammer-drills.

Machinery in power-house:—

1-100 h. p. boiler.

1-50 h. p. double-drum hoist, size of drum 54x42 inches, capable of hoisting 4500 pounds 600 feet per minute.

1-75 h. p. compound-air, compound-steam, condensing, air-compressor.

Machinery being installed in mill:—

1-ten-stamp mill, 1000-lb. stamps.

1-40-h. p. centre-crank engine.

1-Blake-rock-breaker, automatically fed, size 9x15 inches.

The mill-building, a large substantial structure, is near completion. Mining operations will be resumed as soon as the mill is ready. All the ore so far taken out, was from the North Mulgrave lead. The company intend to thoroughly develop this property. The excellent quality of the quartz having been shown by past records.

---

## VICTORIA COUNTY.

### CLYBURN BROOK.

H. Munroe Rogers et al.

This district is being prospected and developed by American capital under the supervision of Joseph M. Brown.

An average of 7 men has been employed in the last year.

The ore is an auriferous sulphide, containing minute tracts of telluride, copper and arsenic, but no free gold, with no apparent indications of secondary enrichments. All the workings so far are situated at the foot of Franey Mountain. About nine hundred feet of tunneling has been done up to date, and a 50-foot shaft sunk and well timbered, besides numerous prospecting holes.

The machinery comprises, one boiler, hoist and fan, but as the mine up to the present is in the development stage, the machinery and buildings containing the same, are not classed as of a permanent nature. All kinds of mining-tools and all necessities for sinking and drifting are at the mine.

A large concrete boarding house, 82 by 36 feet, has been built, also barns, coal sheds and other out-houses. A road from North Bay to the mine has just been completed and can be used, on which to haul machinery. A number of experienced mining men and metallurgists are now working on this special ore to devise a metallurgical process for the extraction of the gold. This is evidently a cyanide proposition, and the future of the prospect is based wholly on the percentage extraction of the cyanide for the gold value of the ore, and the quantity has been proved to the satisfaction of the operators.

---

### *TUNGSTEN.*

#### *SCHEELITE (MOOSE RIVER).*

Scheelite Mines Limited. H. C. Borden, manager; O. T. Wren, foreman.

Operations have been carried on during the year on a small scale. An average of 4 men has been employed. Very little underground work has been done. 200 tons of ore were treated, some of which was taken from the drifts and cross-cuts driven during the year. 10 tons of concentrates were recovered and shipped.

The incline shaft on the incline vein is now 460 feet long, and the vertical shaft through which the water is pumped from the mine is 80 feet deep. The total length of drifts and cross-cuts at the end of the year was 3420 feet. The total upraising 576 feet, 600 feet of drifting, 250 feet of cross-cutting, and 110 feet of upraising was done during the year.

A shaft is being sunk on the incline lead cross the bog to the west, and a cross-cut is to be driven for exploration purposes. A shaft-house is being built and a boiler and hoist are to be installed. All mining is now at a standstill, but the water is being kept out of the mine. All the work is now being done on the new shaft.

## BARYTES MINES.

## SCOTTSVILLE AND EAST LAKE AINSLIE.

Barytes Limited. H. H. Harrison, manager; Peter Campbell, superintendent of mines.

The buildings consist of mill, 115 by 52 feet, and 28 feet in height; one engine-room, 36 by 24 feet; power-house, 50 by 30 feet; one store-house; one blacksmith-shop.

The properties leased cover an area of 700 acres. At Scottsville the mine is on the T. C. Campbell property. At East Lake Ainslie the mine is on the MacMillan property.

The refining plant at Scottsville has been completed, and there was manufactured for market 700 tons of this product. The capacity of the plant at the present time is one ton of finished product an hour.

The mine operated last year was that on the Campbell property, and the width of the deposit is 18 feet. Levels have been driven at 50 and 100 feet on the slope. The slope has been traced for a distance of 2500 feet on the surface.

There has been no development work done this year. They have been working out the area previously developed. The prospects of this company are bright, as they have many large orders on hand.

The steam-generating plant consists of two brick-set boilers of 65 indicated h. p. each, a total of 130 h. p.

The machinery on surface, in addition to the mill-machinery, consists of one 100 h. p. engine, one hoist with 300 feet of  $\frac{1}{2}$ -inch diameter rope; one back-balance gear with 1200 feet of  $\frac{3}{4}$ -inch diameter rope; one four-drill compressor with two air-receivers.

The underground machinery consists of three No. 2 air-drills, and 2000 feet of  $3\frac{1}{2}$ -inch air-pipe.

There are 3000 feet of track laid from the ore-pocket at the mine with 12-pounds-a-yard steel rails.

## QUARRIES.

REPORT OF R. D. ANDERSON, *Deputy Inspector*, on the quarries operated in Nova Scotia, in the fiscal year ended September 30th, 1913. The report is gathered from inspection and official records.

All the quarries, are with one exception, in good condition, and worked with regard to economy and safety.

The revisions in the Act calling for the fencing of the approaches to the quarries, and of all dangerous places, and the storing of explosives at 250 yards from the work, are being generally attended to

At Cheverie, one of the quarries, worked by a contractor, I found in a dangerous condition, and the men working under a very heavy overhang. I ordered the men out of the quarry, not to return; and, subsequently, by letter, notified the manager of the quarry to cease operations there and to have the quarry fenced.

One fatal accident and three minor accidents were reported in the year.

On Oct. 22nd, 1912, Clarence Marks, 28 years of age, was killed at the Maritime Gypsum Co.'s quarries at Nappan, by stepping in front of a loaded car in motion; the car ran over him. The jury of inquest returned a verdict of accidental death.

The other accidents occurred at Marble Mountain, Dominion Iron and Steel Co.'s quarries, as follows:—Sept. 6th, 1913, Vincent Mombourquette, aged 21, loader, foot injured by stone rolling on it. September 22nd, 1913, Stephen Lobinski, aged 46, quarryman, foot injured by fall of stone. September 27th, 1913, Joseph Kavanagh, fell off car, elbow dislocated.

There appears to be a general willingness to observe the provisions of the Act relating to quarries.

The output from the quarries of the Province, for the year, was as follows:—

Gypsum .....	271,609 tons
Building stone .....	13,186 “
Limestone .....	547,004 “
Grindstone .....	140 “
Granite .....	800 “

There were 1400 men employed, not regularly.

## CUMBERLAND COUNTY.

## THE AMHERST RED STONE QUARRY

(Owned and operated by the Amherst Red Stone Co.)

W. W. Black is manager, and G. L. Como, foreman.

There are 12 men employed, producing 50 tons of stone a day, which is all dressed at the quarry, and sold in the local market.

The property consists of about five acres, which is all fenced. The overburden is about 10 feet. The stone is handled by three cranes with a lift of six tons each. There is a good water supply at the quarry.

The plant consists of three boilers, totaling 150 h. p.; one double-engine 8 by 10 inches; one large pump, one steam drill and three cranes. The blasting is done by powder and fuse, fired by an electric battery. The output last year was 3438 tons.

## SIMMON'S QUARRY.

This is a new quarry opened in the autumn of 1912, just outside the town of Amherst.

W. F. Simmons is manager. There were three men employed last year. The work is all done by hand; the product is grey sandstone, 15 tons a day; which is all sold in Amherst.

The property consists of 40 acres; overburden about three feet. There is a good water supply near.

## CURRAN'S QUARRY.

Percy T. Smith is lessee and manager; Frank Curran, foreman.

This quarry is in the town of Amherst. It was opened about five years ago, but has been idle these last two years. Work was resumed last April. There are six men employed. The product is brown sandstone, about 30 tons a day. The face worked is about 300 feet long and 45 feet high. The stone is quarried by wedges and gads. There is a good water supply. The plant consists of one boiler, 35 h. p., and one steam-drill. Output last year was 1300 tons.

## WALLACE SANDSTONE QUARRIES.

Thos. C. Dobson, general manager.

(Owned and operated by The Wallace Sand-Stone Quarries, Ltd.)

The company was reorganized this year with William Lyell as president. It has become the owner of large quarries at Tyndal, Manitoba. The company is in a prosperous condition, and the business at Wallace has increased since last report. This year, the new sawing plant, mentioned in last report, was completed and other additions made to the machinery. The sawing-plant power is produced by two boilers, 65 h. p. each. There are a new engine; and an electric crane, lifting capacity 15 tons, with a travel of 200 by 56 feet. A new building 125 by 60 feet, has been erected for the sawing plant. In all the improvements at this quarry cost about \$100,000. The quarry is in good condition. About 12,000 tons were shipped this year, half of which was dressed stone. The product is olive and blue sandstone. This quarry has more orders than it can fill. The Dalhousie College building, the Halifax market, the new custom house at Montreal, and the new wharf at Souris, P. E. I., have large orders placed with this company for Wallace stone.

## NAPPAN QUARRY.

(Owned and operated by the Maritime Gypsum Co.)

Arthur T. Avar, manager.

The product is gypsum; the quality is the same all through the property, there being no anhydrite. Work is continued all the year. About 70 men are employed, who are insured in the Ocean Accident & Guarantee Corporation. The output is shipped at Amherst Point to New York; and the quarry is also connected by a branch to the Intercolonial Railway.

This company has taken over the management of the Walton quarries, in Hants county, leased from the Churchill estate.

The output for the year was 29,769 tons, an increase of 5236 tons, compared with the previous year.

---

PICTOU COUNTY.

The freestone quarry at Pictou, has been idle since last fall. The product for the fiscal year was 450 tons.

## SUTHERLAND'S QUARRY.

This quarry did not work last year.

## WOODBURN QUARRY.

This is a new quarry, opened on the east side of Merigomish Harbor, in March, 1913, by the Mohawk Grindstone Co. James Stevenson, former foreman at Sutherland's quarry, is the manager. The material is a fine-grain sandstone, very suitable for dry grinding. About 100 tons of dressed stone were on hand at the end of September.

Grindstones are made at the quarry. The nearest station is Woodburn on the Intercolonial Railway. The product is hauled by horses, about a mile and a half, to a siding, and shipped to the United States. Eight men were employed last year. This promises to be a good quarry, and a large increase in the grindstone trade is looked for in Pictou county.

## ANNAPOLIS COUNTY.

## NICTAUX WEST.

This is a granite quarry leased from P. P. Neilly for 25 years, and operated by Messrs. Hoyt and Reed. The property consists of 25 acres. The output is gray granite, about 300 tons a year, which is manufactured into monuments at the company's works at Middleton. The force consists of 8 men. The quarry is about 4 miles from Middleton, and about 2 miles from the Halifax & South-Western Railway. Operations began here in 1910. There is no overburden, and the material, excellent in quality, improves with depth. The work is done by steam, and by hand. About 35 per cent. is lost in manufacture. The product is disposed of locally. The quarry is in good condition. The working season is about 8 months: last year's operations ceased on September 14th.

The product for year ended September 30th, was 400 tons.

## RICE'S QUARRY.—NICTAUX WEST.

This quarry was opened 3 years ago, and comprises 6 acres owned by Mr. Thelburt Rice. Elmer Rice is foreman. 8 men are employed at the quarry. The material is grey granite, which is dressed at the quarry, and at Bear River, N. S. The product is hauled by horses to Brickton, and Middleton Stations.

The granite, like that in Hoyt & Reed's quarry, is of excellent quality, and improves with depth. There is no overburden. The demand for the stone is increasing, and the present quarry owners expect to do a larger business next year.

The plant consists of one 50-h. p. engine; 1 compressor, 10 by 12 inches, capacity 118 feet of air a minute; 1 steam-crane. About 25 per cent. is lost in handling.

## VICTORIA COUNTY.

## ST. ANN'S QUARRY.

This quarry is on a property of 200 acres, held in fee simple, and operated by the Victoria Gypsum, Mining and Manufacturing Co. Mr. W. Clarence Lodge is manager. The material wrought is gypsum of good quality to a depth of 80 feet. The overburden is light, and is removed by pick-and-shovel. The present face is about 80 feet high. This quarry has been in operation about 10 years. The force is about 115 men, who are insured in the Ocean Accident and Guarantee Corporation. The output averages about 90 tons a day. The gypsum is shipped to the United States, from Munroe's Point, three and a half miles from the quarry.

A new quarry is being prospected about one mile to the south of the present works. The gypsum is No. 1 white, equal to the best Hillsboro product. 200 tons have been taken out. There have been no additions to the plant since last report. The production last year was 39,525 tons, an increase over the previous year of 13,163 tons.

## OTTAWA BROOK QUARRY.

Operations at this quarry have been somewhat spasmodic during the year. This property consists of 50 square miles held under lease and operated by the Newark Plaster Company, of Newark, New Jersey. The material quarried is gypsum. Mr. J. Y. Gillis is superintendent. The output from this quarry is about 40 tons a day, produced by hand. The overburden is about 15 feet, removed by falls and carted away. The average force is 25 men. The material is shipped from the company's pier, about a mile from the quarry. This company has been operating here since December, 1907.

The output last year was 3300 tons, an increase over the previous year of 1100 tons.

---

INVERNESS COUNTY.

Quarry at Belle Marche, Eastern Harbor, leased and operated by the Great Northern Mining and Railway Company. The works are 40 miles north of the Inverness station, the terminus of the Inverness and Richmond Railway. The property comprises three square miles, and the material is gypsum. This company began operations in 1906, and was incorporated in 1907



with a capital of two million dollars. The quarry shows a face 125 feet high, with scarcely any overburden.

The gypsum is made into plaster at the quarry, and is shipped to Montreal and Quebec. The capacity of the plant is between 50 and 60 tons a day. This quarry and plant were idle the most of last year. The amount quarried being 4927 tons, a decrease of about 3750 tons compared with the previous year.

#### MARBLE MOUNTAIN.

(Quarry owned and operated by the Dominion Iron & Steel Co.)

This is the largest quarry in the Province. The materials wrought are marble and limestone, which are shipped to the Dominion Iron and Steel Co.'s plant at Sydney.

The method of working is open-face, stepped. The quarry is on the side of the mountain, which rises at a steep angle out of the lake. The water is deep, within a few feet of the shore; this allows the near approach of vessels, and facilitates shipping, 4000 tons being shipped in an hour.

There were no additions to the plant since last report. About 600 men were employed during the summer.

There is a good fire-fighting apparatus at the works. About 5 tons of dynamite were used, 9/10 of which was 40 per cent., and the balance 60 per cent. The blasting is done by batteries, about 25 tons of rails are used yearly. The output for the year was 455,293 tons, an increase over the previous year of 125,058 tons.

*Officers*:—A. A. Campbell, resident manager; J. H. McDougall, general foreman; Philip B. Smith, master mechanic; John L. Connolly, accountant.

---

#### CAPE BRETON COUNTY.

##### POINT EDWARD QUARRY.

(Owned and operated by the Nova Scotia Steel and Coal Co.)

Fulton J. Cameron, manager.

The material wrought is limestone. The property comprises about 300 acres. The output is about 350 tons a day, quarried by steam-drills and dynamite. The overburden is removed by steam shovel. The nearest railway station is Leitch's Creek, 4 miles distant, on the Intercolonial Railway. The material is hauled to the main line on a spur two and a half miles. The loss in handling

is about 3 per cent. The product is shipped to the Nova Scotia Steel & Coal Co., Sydney Mines, Dominion Tar & Chemical Co., Sydney; and to Londonderry, N. S.

This quarry has been operating since 1902. A new trestle was built. Two thousand dollars' worth of steel cars, and a locomotive have been added to the plant since last report. There are about 400 men employed. The output for the year ended September 30th last was 71,504 tons, an increase over last year's output of 10,726 tons.

#### BALL'S CREEK QUARRY

(Owned and operated by the Dominion Iron and Steel Co.)

This quarry ceased operations in December last. The output being only 5910 tons for the fiscal year, 1913, against 39,389 tons the previous year. The quarry was closed on account of there not being sufficient good stone.

#### GEORGE'S RIVER QUARRY.

This quarry is owned by the Dominion Iron and Steel Co., and operated by John S. Nairn, former manager of the Ball's Creek quarry, and A. L. Campbell, former accountant at Ball's creek quarry, as lessees.

The property consists of 200 acres; the material is dolomite, which contains about three per cent. silica. The dolomite is shipped to the furnaces of the Dominion Iron and Steel Co., at Sydney, and the discarded stone to the Dominion Coal Co., and is used in the making of concrete. The work is done by steam drills and dynamite. A new level was started last year on the back of the ridge, which promises to be a good producer. About 70 men are employed during the year. This quarry has been working since 1899. There have been no additions to the plant since last report.

The output last year was 14,297 tons.

---

#### HANTS COUNTY.

Quarry near Noel, 7 miles from Kennetcook station, on the D. A. Railway, is owned and operated by the Noel Plaster Co. W. B. O'Brien is manager. The material quarried is gypsum of very pure quality. This quarry was idle during the latter half of

1912. It was put in operation this spring. The product is sold to J. B. King & Co., of New York, proprietors of the Avondale quarries. The latter company's barges take the gypsum from the pier at Noel to New York.

There are about 35 acres of gypsum in this property. There is no overburden. The work is done by hand, and the product is hauled to the pier, about two miles, in carts. The loss in handling is about 5 per cent.

This company have been working this quarry since 1906, and employ about 20 men.

The output last year was 4000 tons.

#### WALTON QUARRIES.

Since last report, a new quarry, called the South Mountain, has been opened at Walton, which is worked conjointly with the quarry mentioned in last year's report.

These quarries are operated by Mr. Albert Parsons, M. P. P., for the Maritime Gypsum Co., who hold the property under lease from the Churchill estate. The material worked is gypsum. The daily output from both quarries is about 250 tons. 60 men are employed. About one mile of railway has been laid from the wharf to the South-Mountain quarry. The road passes about 400 yards from the old quarry—the railway not being laid into the old quarry, the product is still hauled in carts to the railway. Two locomotives have been added to the plant. The wharf has been improved.

The nearest railway station is Scotch Village, 15 miles distant.

The output for the year was 31,000 tons, an increase over the previous year's production of 8500.

#### CHEVERIE QUARRIES.

There are two quarries operated here, one of which was found in a very dangerous condition. The men were ordered out of this quarry, not to return, and the proprietor was notified to fence the quarry. The other quarry is about two hundred yards distant, and near the place of shipment, which is on the side of Minas Basin. These quarries are operated by Mr. Albert Parsons, M. P. P., Mortimer Parsons is manager. The quarry is reached by main road from Walton, 13 miles, or by boat from Windsor. The nearest railway station is Brooklyn, 18 miles

distant. The product is all shipped to the United States. Work is done by hand; about 30 men are employed. The product is hauled to the wharf in carts.

The output last year was 24,000 tons, the same as the previous year's output.

#### WENTWORTH QUARRIES.

These quarries are owned and operated by the Wentworth Gypsum Co., and are about 5 miles from Windsor. E. N. Dimock, manager, George Shay, foreman. The property consists of 5 square miles, upon which three quarries are being operated—the Meadow, Fraser, and the Eagle Swamp quarries. About 50 more men are employed this year, making a force of about 135 men. A new railroad is to be constructed, about one mile, from the Meadow to Fraser quarry toward Wentworth Creek, where the company ships its product. The quarries are worked all the year, and the gypsum shipped to New York. A Government diamond-drill has been boring here, these last 12 months, testing the quality and depth of the gypsum veins. The production last year was 116,839 tons, 11,044 more than in 1912.

#### WINDSOR QUARRY.

Quarry owned and operated by the Windsor Gypsum Co. It is about 5 miles from Windsor. This is one of the best kept quarries in the Province. Thomas A. Mosher is manager. The overburden is removed by hand, and is much lighter than in the Wentworth Gypsum Co.'s quarries; but it is in the same vein of gypsum. The property contains 180 acres. The product is shipped at Windsor to New York. The Dominion Atlantic Railway hauls the gypsum from the quarries on a spur from the main line and delivers it at the Windsor water-front. The output for the year was 22,059 tons; about the same as the previous year. Fifty men were employed.

#### AVONDALE QUARRY.

This quarry is three miles from Avondale toward Miller's Creek. It is reached by road, 14 miles, or by boat, 5 miles, from Windsor, or by the company's railway from Avondale. Otis Wack is manager.

This property contains 300 acres, and is owned and operated by the Newport Plaster Mining and Manufacturing Co., J. B. King & Co., New York, being the principal owners. This company has

---

worked here four years. The product is gypsum. About 120 men are employed, who are members of the Quarry Workers' International Union.

The tunnel started about two years ago, to regain the old quarry, a large deposit of gypsum, has been stopped. Nothing new has been added to the plant, except 2400 feet of narrow gauge road, to connect another quarry to the south, toward which the tunnel was driven. The product is shipped at Avondale to New York. The pier is 900 feet long; at high water the vessels are loaded by elevators. The output for the year was 45,692 tons, 9,595 tons less than the previous year.

## Government Core-Drills.

REPORT OF ROBERT D. ANDERSON, *Deputy Inspector*, on the operations of Government drills during the fiscal year ended September 30th, 1913.

The demand for drills was not so large as in the previous year.

The total amount of boring was 7602 feet: 5782 feet bored by diamond drills, and 1820 feet bored by Calyx drills.

The expenditure by the Department for wages, upkeep of machines, and general account, for the past year, was \$4136.82, distributed as follows:—

Drill No. 1.....	\$636.24
“ “ 2.....	33.42
“ “ 3.....	11.03
“ “ 4.....	not used
“ “ 5.....	32.68
“ “ 6.....	362.20
“ “ 7.....	281.35
New store-house and general account.....	2779.90
	<hr/>
	\$4136.82

The expenditure, outside of store-house account, and general account, was \$1356.92, as against \$3499.72 in the previous year.

The total expenditure, by the department on Government core-drills, to the end of September last, was \$86,439.23.

The cost a foot for boring for minerals was \$2.08. The greatest cost a foot for boring by diamond-drills was \$4.60, the lowest cost was \$0.25.

The greatest cost a foot for calyx drills was \$3.22¾, the lowest cost was \$1.24.

The average carbon-cost a foot, \$0.11 8/10.

The average shot-cost a foot, \$0.02 9/10.

The boring done at Bear River bridge and at Weymouth bridge, not having been in search of mineral, is not considered in the cost per foot : there was no expense incurred by the department in this work. There is no cost given and no log of the strata ; as the boring was done in river-mud and sand, testing for bridge foundations

The new drill store-house at New Glasgow was completed last summer, and all the drill-property of the Government is now stored there.

The following tables of the report show the strata bored, and the cost of holes.

Summary Statement of Boring, Year ended September 30th, 1913.

Drill No.	LOCALITY.	No. of Hole.	Depth of Borehole		Total for Locality		Total for Drill	
			Feet	Inches	Feet	Inches	Feet	Inches
1	Allan Shafts .....	1	287	00	287	00	.....	.....
1	Port Hood, near shipping pier .....	1	53	00	53	00	.....	.....
1	Forest Glen, Colchester .....	1	415	00	415	00	.....	.....
1	Rear, Boisdale .....	1	613	01	.....	.....	.....	.....
1	" .....	2	469	02	.....	.....	.....	.....
1	" .....	3	215	08	.....	.....	.....	.....
1	" .....	4	115	06	1413	05	2168	05
2	Wentworth Gypsum Quarries .....	8	91	00	.....	.....	.....	.....
2	" .....	9	65	02	.....	.....	.....	.....
2	" .....	10	42	10	.....	.....	.....	.....
2	" .....	11	37	00	.....	.....	.....	.....
2	" .....	12	79	02	.....	.....	.....	.....
2	" .....	13	56	02	.....	.....	.....	.....
2	" .....	14	63	00	.....	.....	.....	.....
2	" .....	15	64	00	.....	.....	.....	.....
2	" .....	16	45	01	.....	.....	.....	.....
2	" .....	17	26	00	.....	.....	.....	.....
2	" .....	18	40	00	.....	.....	.....	.....
2	" .....	19	100	00	.....	.....	.....	.....
2	" .....	20	50	00	.....	.....	.....	.....
2	" .....	21	93	00	.....	.....	.....	.....



2	"	"	"	22	41	00	.....	.....	.....	.....
2	"	"	"	23	71	04	.....	.....	.....	.....
2	"	"	"	24	19	04	.....	.....	.....	.....
2	"	"	"	25	13	00	.....	.....	.....	.....
2	"	"	"	26	67	00	.....	.....	.....	.....
2	"	"	"	27	90	02	.....	.....	.....	.....
2	"	"	"	28	235	00	.....	.....	.....	.....
2	"	"	"	29	70	00	.....	.....	.....	.....
2	"	"	"	30	231	02	.....	.....	.....	.....
2	"	"	"	31	43	03	.....	.....	.....	.....
2	"	"	"	32	147	00	.....	.....	.....	.....
2	"	"	"	33	77	00	.....	.....	.....	.....
2	"	"	"	34	141	03	2098	11	2098	11
3	Bear River Bridge, testing for foundation, 25 holes				1375	04	1375	04	.....	.....
3	Weymouth Bridge, 4 holes, testing for foundation				139	03	139	03	1514	07
5	Inverness, C. B.				205	01	.....	.....	.....	.....
5	" "				339	03	544	04	544	04
6	In Albion Mine				206	02	.....	.....	.....	.....
6	" "				167	07	373	00	373	00
7	Inverness, C. B.				118	02	.....	.....	.....	.....
7	" "				95	00	213	02	002	03
7	Bear River Bridge, 11 holes, testing for foundation				689	01	689	01	7002	03
7	80 holes, totalling				.....	.....	.....	.....	7002	03

DRILL NUMBER 1.

Steam Diamond, 2-inch core.

No. 19 HOLE.—This hole was bored in the Allan-Shafts mine, 2 feet 6 inches west of No. 18 hole, on an angle of 24 degrees, to tap water in Ford-pit. Hole bored for Acadia Coal Co. Commenced boring October 4, 1912: finished hole October 10, 1912. Working double-shift. Fastest rate of boring, 12 feet 9 inches an hour, in coal and shale.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Coal .....	.....	10	....	10	...
Coal .....	.....	110	....	120	...
Coal .....	.....	76	....	196	...
Coal .....	.....	51	....	247	...
Coal .....	.....	30	....	277	...
Shale .....	Grey .....	10	....	287	...

This hole cost \$0.25 a foot, made up as follows:—

Labor .....	\$31.20
Management .....	30.80
Light, oil and waste.....	.30
Carbon wear .....	1.17
Casing .....	2.40
Valve .....	5.00
	<hr/>
	\$70.87

HOLE No. 1, Port Hood, on the shore at high-water mark, 394 feet north of line of slope, on the north side of shipping-pier. Commenced hole October 21, 1912: finished hole October 24, 1913. Hole bored for the Provincial Government to show the depth of sand overlying the bed-rock.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Sand .....		8	....	8	....
Sand .....		12	03	20	03
Gravel .....		4	04	24	07
Sandstone ....	Grey .....	1	....	25	07
Shale .....	Red .....	16	05	42	....
Shale .....	Red .....	3	03	45	03
Clay .....	Grey .....	3	09	49	....
Sandstone ....	Soft grey .....	4	....	53	....

This hole cost \$244.30, or \$4.60 a foot.

N<sup>o</sup>. 1 HOLE, at Forest Glen, Colchester county, on the property of the Maritime Lumber Co., 150 feet south of the proposed Stewiacke & Lansdowne Railway; and 820 feet southwest of a shaft. Drill working single-shift. Hole bored for E. H. Culton *et al*, Stellarton, searching for coal; dip of strata southwest. Commenced hole November 9, 1912, finished hole February 22, 1913.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Surface .....	Soil and Clay .....	17	....	17	....
Clay .....	Red .....	16	....	33	....
Sandstone ....	Grey .....	1	....	34	....
Clay .....	Red .....	22	....	56	....
Clay .....	Red .....	16	....	72	06
Shale .....	Grey .....	7	06	80	....
Sandstone ....	Grey .....	1	07	81	07
Clay .....	Red and grey with bands of gypsum .....	9	....	90	07
Clay .....	Red .....	10	09	101	04
Sandstone ....	Grey .....	4	02	105	06
Sandstone .....	Grey .....	16	06	122	....
Shale .....	Hard, grey .....	5	09	127	09
Sandstone ....	Dark-grey .....	....	05	128	02
Limestone ....	Grey .....	12	....	140	02
Limestone ....	Grey .....	5	....	145	02

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Limestone . . . .	Grey . . . . .	15	01	160	03
Clay . . . . .	Grey, with bands of gypsum..	20	....	180	03
Clay . . . . .	Grey, with bands of gypsum..	23	....	203	03
Clay . . . . .	Grey, with bands of gypsum..	12	03	215	06
Limestone . . . .	or sandstone hard, dark grey..	1	02	216	08
Clay . . . . .	Dark-grey . . . . .	2	....	218	08
Clay . . . . .	Dark-grey . . . . .	2	10	221	06
Clay . . . . .	Dark-grey . . . . .	17	....	238	06
Shale . . . . .	Grey, bands of ironstone.....	1	03	239	09
Shale . . . . .	Grey, with bands of ironstone	3	....	242	09
Limestone . . . .	Grey, with bands of ironstone	1	06	244	03
Limestone . . . .	Hard grey . . . . .	2	....	246	03
Limestone . . . .	Hard grey . . . . .	....	09	247	00
Clay . . . . .	Grey, with bands of limestone.	17	02	264	02
Clay . . . . .	Grey, with bands of limestone.	3	04	267	06
Limestone . . . .	Grey . . . . .	1	08	269	02
Clay . . . . .	Grey, with bands of gypsum..	16	10	286	...
Limestone . . . .	Hard, grey . . . . .	1	09	28	09
Clay . . . . .	Grey, with bands of gypsum..	2	00	290	06
Clay . . . . .	Grey, with bands of gypsum..	4	....	294	06
Limestone . . . .	Dark, grey . . . . .	3	....	297	06
Limestone . . . .	Grey, with bands of clay and gypsum . . . . .	17	09	315	03
Gypsum . . . . .	White . . . . .	2	....	317	03
Clay . . . . .	Grey, sandy . . . . .	1	03	318	06
Gypsum . . . . .	White and brown, mixed....	20	03	338	09
Gypsum . . . . .	White and brown, mixed . . . .	8	....	346	09
Clay . . . . .	Grey, sandy . . . . .	9	03	356	...
Clay . . . . .	Red . . . . .	4	04	360	...
Clay . . . . .	Grey, with bands of gypsum..	1	03	361	07
Clay . . . . .	Grey, with bands of gypsum..	2	02	363	09
Clay . . . . .	Red, with bands of gypsum...	3	04	367	01
Limestone . . . .	Grey, with gypsum bands....	11	11	379	...
Gypsum . . . . .	White . . . . .	10	06	389	06
Gypsum . . . . .	White . . . . .	25	09	415	03

This hole cost \$2.61 a foot, made up as follows:—

Labor .....	\$194.38
Management .....	652.60
Fuel .....	41.28
Light, oil and waste .....	2.50
Carbon wear .....	64.45
Lumber .....	5.68
Casing pipe .....	11.31
Trucking and freight .....	111.45
	<hr/>
	\$1083.65

HOLE NO. 1. Rear Boisdale, on the farm of Angus Currie, 546 feet east of his barn, and 9 feet west of Currie's Brook. This hole was down 368 feet when this boring began on May 10, 1913. The hole was bored to 613 feet, and was finished on June 7, 1913; distance bored 245 feet, in search of iron ore. Hole put down for C. V. Wetmore of Sydney. Strata dipping south: dip varying from 80 to 87 degrees.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
	Began at 368 feet .....	....	....	368	...
Metamorphic Limestone	Hard, grey .....	16	04	384	04
"	Hard, grey .....	9	06	393	10
"	Hard, grey .....	11	06	405	04
"	Hard, grey .....	7	08	413	...
"	Showing iron .....	3	04	416	04
"	Hard, grey .....	7	04	423	08
"	Hard, grey .....	1	08	425	04
"	Showing iron .....	10	04	435	08
"	Showing iron .....	7	....	442	08
"	Showing iron .....	5	01	447	09
"	Hard, grey .....	14	10	462	07
"	Hard, grey .....	7	03	469	10
"	With feldspar .....	5	02	475	...
"	Hard, grey .....	7	....	482	...

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
"	Hard, grey .....	16	01	498	01
"	Hard, grey .....	3	05	501	06
"	Hard, grey .....	12	04	513	10
"	Hard, grey .....	16	02	530	...
"	Hard, grey .....	10	06	540	06
"	Hard, grey .....	5	02	545	08
"	Hard, grey .....	7	04	553	...
"	Hard, grey .....	10	...	563	...
"	Hard, grey .....	2	06	565	06
"	Hard, grey .....	2	...	567	06
"	Hard, grey .....	11	06	579	...
"	Hard, grey .....	6	08	585	08
"	Hard, grey .....	11	...	596	08
"	Hard, grey .....	5	02	601	10
"	Hard, grey .....	5	10	607	08
"	Hard, grey .....	5	05	613	01

This hole cost \$617.20, or \$2.51 a foot, made up as follows:—

Labor .....	\$75.25
Management .....	168.70
Fuel .....	30.00
Light, oil and waste .....	1.20
Carbon wear .....	236.70
Lumber .....	3.75
Trucking and freight .....	85.60
Shot-bits .....	7.00
Core shells .....	5.00
Core lifters .....	4.00

\$617.20

Steam Diamond, 2-inch core.

HOLE No. 2, on the property of Angus Currie, Rear Boisdale, 288 feet northwest of Mr. Currie's house, and 100 feet southeast of supposed ore-vein. Hole drilled in a northwest direction at an angle of 45 degrees: fastest rate of boring, in one hour, 5 feet, in limestone. Hole bored for C. V. Wetmore of Sydney, in search of iron ore. Commenced hole June 16, 1913, finished hole August 12, 1913.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Surface .....	Soil .....	10	....	10	...
Slate .....	Metamorphic, green .....	6	02	16	02
Limestone ....	Streaks of iron ore .....	6	06	22	08
Slate .....	Grey, streaks of iron and spar.	10	05	33	01
Limestone ....	White .....	2	01	35	02
Limestone ....	White .....	25	....	60	02
Slate .....	Greenish, hard .....	1	....	61	02
Limestone ....	White ....	1	....	62	02
Limestone ....	White .....	17	08	79	10
Limestone ....	Dark, grey .....	5	04	85	02
Limestone ....	Showing iron .....	6	04	91	06
Limestone ....	Showing iron .....	4	02	95	08
Granite .....	Very hard .....	6	....	101	08
Granite .....	Very hard .....	3	06	105	02
Granite .....	Very hard .....	9	08	114	10
Granite .....	Very hard .....	7	06	122	04
Granite .....	Very hard .....	12	04	134	08
Granite .....	Very hard .....	6	...	140	08
Granite .....	Very hard .....	9	04	150	...
Granite .....	Very hard .....	6	06	156	06
Granite .....	Very hard .....	6	02	162	08
Granite .....	Very hard .....	5	06	168	02
Granite .....	Very hard .....	6	03	174	05
Granite .....	Very hard .....	8	07	183	...
Granite .....	Very hard .....	....	06	183	06
Limestone ....	.....	3	....	186	06
Limestone ....	.....	2	07	189	01
Granite .....	Very hard .....	6	....	195	01
Granite .....	Very hard .....	7	03	202	04
Granite .....	Very hard .....	4	04	206	08
Granite .....	Very hard .....	4	04	211	...
Granite .....	Very hard .....	7	06	218	06
Granite .....	Very hard .....	4	....	222	06
Granite .....	Very hard .....	6	08	229	02
Quartz & Gran.	Very hard .....	3	....	232	02
Quartz & Gran.	Very hard .....	5	05	237	07
Quartz & Gran.	Very hard .....	8	09	246	04
Limestone ....	White .....	6	03	252	07
Limestone and Granite	.....	9	05	262	...
Granite .....	Very hard .....	10	....	272	...

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Granite .....	Very hard .....	2	08	2;4	08
Slate .....	Dark, grey .....	5	....	2;9	08
Granite .....	Very hard .....	2	06	28;2	02
Granite .....	Very hard .....	11	08	29;3	10
Granite .....	Very hard .....	13	....	30;6	10
Granite .....	Very hard .....	5	02	31;2	...
Slate .....	Dark, grey .....	4	....	31;5	..
Slate & Granite	Dark, grey .....	6	02	32;2	02
Limestone ....	White .....	8	....	33;0	02
Limestone ....	White .....	18	....	34;8	02
Limestone ....	Bands of slate .....	24	05	37;2	07
Limestone ....	Bands of slate .....	18	01	39;0	08
Granite .....	Grey .....	3	....	39;3	08
Granite .....	Grey .....	9	....	40;2	08
Granite .....	Grey .....	4	08	40;7	04
Limestone ....	White .....	3	....	41;0	04
Granite .....	Dark, grey .....	1	....	41;1	04
Granite .....	Dark, grey .....	8	10	42;0	02
Granite with					
Quartz	White .....	10	04	43;0	06
"	White .....	8	....	43;8	06
"	Grey .....	10	....	44;8	06
"	Grey .....	8	10	45;7	04
"	Grey .....	3	02	46;1	06
Limestone ....	White .....	8	08	46;1	02

This hole cost \$1.81 a foot, made up as follows:—

Labor .....	\$130.25
Management .....	254.25
Fuel .....	93.50
Light, oil, waste, etc.....	2.00
Carbon wear .....	320.00
Lumber .....	5.25
Trucking .....	14.35
Shot-bits .....	14.40
Core shells .....	12.00
Core lifters .....	4.00
	<hr/>
	\$850.00



HOLE No 3, at Rear Boisdale, on the property of Angus Currie, and 230 feet north of borehole No. 2. Hole drilled vertically. Fastest rate of boring, 4 feet 3 inches an hour. Commenced hole August 28, 1913. Single-shift. In search of iron.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Surface .....	Soil .....	7	....	7	...
Limestone ....	Coarse, brownish-grey .....	10	08	17	08
Limestone ....	Grey .....	10	04	28	...
Limestone ....	Grey .....	17	02	45	02
Limestone ....	Grey, streaked with iron ....	6	....	51	02
Slate .....	Brown, streaked with iron ...	9	02	60	04
Limestone ....	White .....	4	03	64	07
Slate .....	Brown, streaked with iron ...	1	02	65	09
Limestone ....	White .....	3	03	69	...
Limestone ....	Grey, bands of slate and red hematite .....	15	06	84	06
Limestone ....	Grey, bands of slate and red hematite .....	5	01	89	07
Limestone ....	Grey, bands of slate and red hematite .....	23	10	113	05
Limestone ....	Bands of slate .....	14	07	128	...
Limestone ....	Bands of slate .....	6	04	134	04
Slate .....	Greenish .....	1	06	135	10
Limestone ....	White .....	11	10	147	08
Limestone ....	White .....	18	06	166	02
Limestone ....	Bands of slate .....	3	10	170	...
Limestone ....	Bands of slate .....	8	03	178	03
Limestone ....	Hard, dark grey .....	4	10	183	01
Quartz .....	White, pink feldspar .....	2	08	185	09
Quartz .....	White, pink feldspar .....	1	....	186	09
Quartz .....	White, pink feldspar .....	10	03	197	...
Quartz .....	White, pink feldspar .....	5	....	202	...
Quartz .....	White, pink feldspar .....	8	02	210	02
Quartz .....	White, pink feldspar .....	5	06	215	08

This hole cost \$1.37½ a foot, made up as follows:—

Labor .....	\$ 72.25
Management .....	105.40
Fuel .....	26.00
Light, oil, and waste .....	1.60
Carbon wear .....	62.10
Lumber .....	1.50
Trucking .....	13.00
Shot-bits .....	4.25
Core shells .....	5.60
Lifters .....	4.00
	<hr/>
	\$295.70

#### DRILL NUMBER 1.

Steam Diamond, 2-inch core.

HOLE No. 4, on the property of Angus Currie, 100 feet north of borehole No. 3, hole drilled perpendicular: drill running single-shift: fastest rate of boring, 5 feet in an hour, in limestone. Hole put down for C. V. Wetmore, Sydney, in search of iron. Commenced hole September 25th, 1913: depth bored, at the end of September, 115 feet 6 inches. Details as to cost and material cannot be given until next year's report.

#### DRILL NUMBER 2.

Steam, Diamond, 15/16-inch core.

27 holes, numbers 8 to 34.

On the property of the Wentworth Gypsum Co., near Windsor, in and about Eagle Swamp and Wentworth Creek. Mineral sought, gypsum. Commenced boring October 1, 1912. Drill still operating.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 8.					
Gypsum . . . . .	Soft, white, streaked with lime	8	05	8	05
Gypsum . . . . .	Soft, white, streaked with lime	22	07	31	...
Gypsum . . . . .	Soft, white, streaked with lime	27	08	58	08
Gypsum . . . . .	Soft, white, streaked with lime	12	...	70	08
Gypsum . . . . .	Mixed with selenite . . . . .	4	03	74	11
Limestone . . . .	Grey . . . . .	5	05	80	04
Sand . . . . .	Red . . . . .	...	05	80	09
Gypsum . . . . .	Soft, streaked with lime . . . . .	2	...	82	09
Selenite . . . . .	Soft, streaked with lime . . . . .	8	03	91	...
HOLE 9.					
Gypsum . . . . .	Soft, white . . . . .	3	04	3	04
Gypsum . . . . .	Hard, blue . . . . .	2	01	5	05
Gypsum . . . . .	Hard, blue . . . . .	11	07	17	00
Gypsum . . . . .	Hard, blue . . . . .	16	...	33	...
Gypsum . . . . .	Hard, blue . . . . .	13	02	46	02
Gypsum . . . . .	Hard, blue . . . . .	14	...	60	02
Gypsum . . . . .	Hard, blue . . . . .	5	...	65	02
HOLE 10.					
Surface . . . . .	Red clay, loose gypsum . . . . .	4	...	4	...
Gypsum . . . . .	Hard, blue . . . . .	6	04	10	04
Gypsum . . . . .	Hard, blue . . . . .	16	...	26	04
Gypsum . . . . .	Hard, blue . . . . .	16	06	42	10
HOLE 11.					
Surface . . . . .	Red sand and clay . . . . .	11	...	11	...
Gypsum . . . . .	Hard, blue . . . . .	17	06	28	06
Gypsum . . . . .	Hard, blue . . . . .	8	06	37	...
HOLE 12.					
Gypsum . . . . .	Soft, white, full of holes . . . . .	15	06	15	06
Gypsum . . . . .	Hard, blue, streaks of soft . . . . .	19	03	34	09
Gypsum . . . . .	Soft, white, limestone streaks . . . . .	7	04	42	01
Gypsum . . . . .	Soft, white, limestone streaks . . . . .	9	11	59	...
Gypsum . . . . .	Hard, blue . . . . .	5	08	64	08
Gypsum . . . . .	Hard, blue . . . . .	8	04	73	...
Gypsum . . . . .	Hard, blue . . . . .	6	02	79	02

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 13.					
Surface .....	Plaster and mud.....	6	03	6	03
Surface .....	Plaster and mud .....	1	09	8	...
Gypsum .....	Soft, white, streaked with lime	6	....	14	...
Gypsum .....	Soft, white, streaked with lime	10	03	24	03
Gypsum .....	Soft, white, streaked with lime	3	....	27	03
Gypsum .....	Soft, white, streaked with lime	14	....	41	03
Gypsum .....	Soft, white, streaked with lime	3	03	44	06
Gypsum .....	Hard, blue .....	7	03	51	09
Gypsum .....	Hard, blue .....	4	05	56	02
HOLE 14.					
Surface .....	Loose gypsum and mud .....	5	....	5	...
Gypsum .....	Soft, white, with narrow bands of lime .....	2	02	7	02
Gypsum .....	Soft, white, with narrow bands of lime .....	19	04	26	06
Gypsum .....	Soft, white, with narrow bands of lime .....	18	06	45	...
Gypsum .....	Soft, white, with narrow bands of lime .....	3	02	48	02
Gypsum .....	Hard, blue .....	8	....	56	02
Gypsum .....	Hard, blue .....	6	10	63	...
HOLE 15.					
Gypsum .....	Loose, soft gypsum .....	5	03	5	03
Gypsum .....	Soft, white, streaked with lime	3	....	8	03
Gypsum .....	Soft, white, streaked with lime	8	....	16	03
Gypsum .....	Soft, white, streaked with lime	9	02	25	05
Gypsum .....	Soft, white, streaked with lime	2	05	27	10
Gypsum .....	Soft, white, streaked with lime	10	....	37	10
Gypsum .....	Soft, white, streaked with lime	7	04	45	02
Limestone ....	Soft, grey .....	1	03	46	05
Gypsum .....	Soft, white, streaked with lime	6	03	52	08
Gypsum .....	Soft, white, streaked with lime	6	04	59	...
Gypsum .....	Hard, blue .....	5	....	64	...

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 16.					
Gypsum . . . . .	Mud, loose cover . . . . .	2	03	2	03
Gypsum . . . . .	Soft, white, streaked with lime	4	...	6	03
Gypsum . . . . .	Soft, white, streaked with lime	14	09	21	...
Gypsum . . . . .	Soft, white, streaked with lime	4	08	25	08
Gypsum . . . . .	Soft, white, streaked with lime	6	09	32	05
Gypsum . . . . .	Soft, white, streaked with lime	10	03	42	08
Gypsum . . . . .	Soft, white, streaked with lime	2	05	45	01
HOLE 17.					
Surface . . . . .	Red clay and sand . . . . .	5	02	5	02
Surface . . . . .	Red clay and sand . . . . .	5	10	11	...
Gypsum . . . . .	Soft, white, full of holes . . . . .	9	...	20	...
Gypsum . . . . .	Hard, blue . . . . .	...	10	20	10
Gypsum . . . . .	Hard, blue . . . . .	5	02	26	...
HOLE 18.					
Surface . . . . .	Red clay and sand . . . . .	16	...	16	...
Surface . . . . .	Red clay and sand . . . . .	2	06	18	06
Gypsum . . . . .	Hard, blue . . . . .	6	...	24	06
Gypsum . . . . .	Hard, blue . . . . .	8	04	32	10
Gypsum . . . . .	Hard, blue . . . . .	7	02	40	...
HOLE 19.					
Surface . . . . .	Red clay and boulders . . . . .	9	03	9	03
Surface . . . . .	Red clay and boulders . . . . .	11	05	20	08
Surface . . . . .	Red clay and boulders . . . . .	10	04	31	...
Surface . . . . .	Red clay and boulders . . . . .	6	06	37	06
Gypsum . . . . .	Soft, white, streaked with limestone . . . . .	15	06	53	...
Gypsum . . . . .	Soft, white, streaked with limestone . . . . .	10	06	63	06
Gypsum . . . . .	Soft, white, streaked with limestone . . . . .	10	08	64	02
Gypsum . . . . .	Soft, white, streaked with limestone . . . . .	11	07	85	09
Gypsum . . . . .	Soft, white, streaked with limestone . . . . .	7	08	93	05
Gypsum . . . . .	Hard, blue . . . . .	5	07	99	...

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 20.					
Surface.....	Red, clay and boulders .....	11	04	11	04
Surface .....	Red, clay and boulders.....	14	10	26	02
Gypsum .....	White, soft .....	2	08	28	10
Clay .....	Red, and sandy .....	8	04	37	02
Clay .....	Red, and sandy .....	11	10	49	...
HOLE 21.					
Surface .....	Red clay and boulders .....	15	....	15	...
Surface .....	Red clay and boulders .....	5	....	20	...
Surface .....	Red clay and boulders .....	5	03	25	03
Surface .....	Red clay and boulders .....	6	05	31	08
Gypsum .....	Soft, white, streaked with mud	11	....	42	08
Gypsum .....	Soft, white, streaked with limestone .....	9	03	51	1
Gypsum .....	Soft, white, streaked with limestone .....	13	03	65	02
Gypsum .....	Soft, white, streaked with limestone .....	15	04	80	06
Gypsum .....	Soft, white, streaked with limestone .....	5	02	85	08
Gypsum .....	Hard, blue .....	7	04	93	...
HOLE 22.					
Surface .....	Red clay and boulders .....	15	04	15	04
Surface .....	Red clay and boulders .....	20	01	35	05
Gypsum .....	Soft, white .....	2	08	38	01
Clay .....	Sandy .....	....	06	38	07
Clay .....	Sandy .....	2	05	41	...
HOLE 23.					
Surface .....	Loose gypsum .....	6	....	6	...
Gypsum .....	Hard, blue, streaked with white	3	05	9	05
Gypsum .....	Soft, white .....	1	04	10	09
Gypsum .....	Soft, white .....	5	08	16	05
Gypsum .....	Hard, blue with narrow streaks of soft .....	6	03	22	08
Gypsum .....	Hard, blue, with narrow streaks of soft .....	12	04	35	...
Gypsum .....	Hard, blue, with narrow streaks of soft .....	7	03	42	03
Gypsum .....	Soft, white, narrow streaks of lime .....	3	05	45	08
Gypsum .....	Hard, blue .....	12	....	57	08
Gypsum .....	Hard, blue .....	5	....	62	08
Gypsum .....	Hard, blue .....	8	08	71	04

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 24.					
Surface .....	Clay and boulders .....	6	...	6	...
Surface .....	Clay and boulders .....	10	04	16	04
Gypsum .....	Clay and boulders .....	3	....	19	04
HOLE 25.					
Surface.....	Clay and large boulders, hole abandoned on account of large boulders .....	13	....	13	...
HOLE 26.					
Surface. ....	Clay and Sand .....	10	....	10	...
Surface.....	Clay and sand .....	4	....	14	...
Gypsum.....	Hard, blue .....	9	04	23	04
Gypsum .....	Hard, blue .....	11	03	34	07
Gypsum .....	Hard, blue .....	14	....	48	07
Gypsum .....	Hard, blue .....	6	04	54	11
Gypsum .....	Hard, blue .....	12	01	67	...
HOLE 27.					
Surface .....	Red clay and boulders.....	13	10	13	10
Surface .....	Red clay and buolders.....	21	04	35	02
Surface .....	Red clay and boulders .....	6	05	41	07
Surface .....	Red clay and boulders .....	9	08	51	03
Surface .....	Red clay and boulders .....	7	04	58	07
Gypsum .....	Soft, white, streaked with limestone .....	7	05	66	...
Gypsum .....	Soft, white, streaked with limestone .....	7	....	73	...
Gypsum .....	Soft, white, streaked with limestone .....	6	02	79	02
Gypsum .....	Soft, white, streaked with limestone .....	3	05	82	07
Gypsum .....	Hard, blue .....	7	07	90	02

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 28.					
Surface .....	Black, mud and rocks .....	6	07	6	07
Gypsum .....	Hard, blue .....	9	....	15	07
Gypsum .....	Hard, blue .....	2	05	18	...
Gypsum .....	Soft, white, limestone streaks.	10	06	28	06
Gypsum .....	Soft, white, limestone streaks.	12	....	40	06
Gypsum .....	Soft, white, limestone streaks.	17	....	57	06
Gypsum .....	Soft, white, limestone streaks.	8	07	66	01
Gypsum .....	Hard, blue .....	4	05	70	06
Gypsum .....	Hard, blue .....	8	06	79	...
Gypsum .....	Hard, blue .....	10	....	89	...
Gypsum .....	Soft, white .....	1	....	90	...
Gypsum .....	White .....	5	02	95	02
Gypsum .....	Hard, blue .....	1	....	96	02
Gypsum and Selenite	Soft, white, with selenite bands	5	11	102	01
“	Soft, white, with selenite bands	13	08	115	09
“	Soft, white, with selenite bands	13	....	128	09
Gypsum .....	Light grey .....	13	03	142	...
Gypsum .....	Light grey .....	13	06	155	06
Selenite .....	.....	14	06	170	...
Gypsum .....	Soft, grey, selenite streaks...	12	03	182	03
Gypsum .....	Soft, grey, selenite streaks ...	14	04	196	07
Gypsum .....	Soft, grey, selenite streaks ...	7	10	204	05
Gypsum .....	Soft, grey, selenite streaks ...	12	07	217	...
Gypsum .....	Soft, grey, selenite streaks ...	6	....	223	...
Limestone ....	Dark, limestone streaks, strong odor of oil .....	12	....	235	...
HOLE 29.					
Surface .....	Black mud and sand .....	6	03	6	03
Gypsum .....	Soft, white .....	7	....	13	03
Gypsum .....	Soft, white .....	12	04	25	07
Gypsum .....	Hard, blue, narrow bands....	4	....	29	07
Gypsum .....	Hard, blue, narrow bands....	12	05	43	...
Gypsum .....	Hard, blue, narrow bands....	13	03	46	03
Gypsum .....	Hard, blue, narrow bands ....	14	09	70	...
	Strong odor of oil.				



Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 30.					
Surface .....	Black mud, sand and rock...	16	03	16	03
Surface .....	Black mud, sand and rock...	6	02	22	05
Gypsum .....	Soft, white and light grey....	11	09	34	02
Gypsum .....	Soft, white and light grey....	19	05	53	07
Gypsum .....	Soft, white and light grey....	16	03	69	10
Gypsum .....	Soft, white and light grey....	17	04	87	02
Gypsum and Selenite	Soft, light grey streaks selenite	18	....	105	02
Gypsum .....	Soft, light grey .....	17	10	123	...
Gypsum .....	Soft, light grey .....	16	08	139	08
Gypsum .....	Soft, light grey .....	15	10	155	06
Gypsum .....	Soft, light grey, selenite bands	14	08	170	02
Gypsum .....	Soft, light grey, selenite bands	17	....	187	02
Gypsum .....	Mixed with selenite .....	18	03	205	05
Gypsum .....	Mixed with selenite .....	12	....	217	05
Limestone ....	Blue .....	13	09	231	02
HOLE 31.					
Surface .....	Black mud .....	6	02	6	02
Gypsum .....	Soft, white .....	26	....	32	02
Gypsum .....	Soft, white .....	6	10	39	...
Space .....	Soft, white .....	3	....	42	...
Rocks and Clay	Red .....	1	03	43	03
HOLE 32.					
Surface .....	Gypsum and mud .....	10	04	10	04
Gypsum .....	Soft, white and light grey ....	4	09	15	01
Gypsum .....	Soft, white and light grey....	18	07	33	08
Gypsum .....	Soft, white and light grey....	24	04	58	...
Gypsum .....	Soft, white and light grey....	20	03	78	03
Gypsum .....	Soft, white and light grey....	4	07	82	10
Gypsum .....	Hard, blue .....	7	02	90	...
Gypsum .....	Soft, white and hard grey....	10	....	100	...
Gypsum .....	Soft, white and hard grey....	7	08	107	08
Selenite .....	Soft, white and hard grey....	1	05	109	01
Gypsum .....	Soft, light grey & white mixed	5	08	114	09
Gypsum .....	Soft, light grey & white mixed	24	....	138	09
Gypsum .....	Soft, light grey & white mixed	4	05	143	02
Gypsum .....	Hard, blue .....	3	10	147	...

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 33.					
Gypsum .....	Soft, white and light grey....	6	03	6	03
Gypsum .....	Soft, white and light grey....	3	05	9	08
Gypsum .....	Hard, blue, mixed with soft..	8	02	17	10
Gypsum .....	Hard, blue, mixed with soft..	8	....	25	10
Gypsum .....	Soft, white & light grey, mixed	11	04	37	02
Gypsum .....	Soft, white & light grey mixed	14	....	51	02
Gypsum .....	Soft, white & light grey mixed	7	02	58	04
Gypsum .....	Hard, blue, bands of soft white	7	04	65	08
Gypsum .....	Hard, blue, bands of soft white	11	04	77	...
HOLE 34.					
Gypsum .....	Soft, white, light grey mixed	13	04	13	04
Gypsum .....	Soft, white, light grey mixed	17	05	30	09
Gypsum .....	Soft, white, light grey mixed	16	....	46	09
Gypsum .....	Soft, white, light grey mixed	15	01	61	10
Gypsum .....	Soft, white, light grey mixed	9	08	71	06
Gypsum .....	Soft, white, light grey mixed	13	...	84	06
Gypsum .....	Mixed with narrow bands of selenite .....	12	08	97	02
Gypsum .....	Soft, white, light grey mixed	12	10	110	...
Gypsum .....	Soft, white, light grey mixed	16	02	126	02
Gypsum .....	Soft, white, light grey mixed	15	01	141	03

These holes totalled 2050 feet 11 inches, and cost \$2093.43, or \$1.00 2/10 a foot.

### DRILL NUMBER 3.

Hand-power, Diamond, 1 1/10-inch core.

This drill was employed by the Canadian Pacific Railway Co., testing for bridge foundations at Bear River, from June 4th to August 20th, and at Weymouth, for the same company and for the same purpose, from November 5th to November 11, 1912.

There is no cost, and no log given, as the boring was in river mud and sand, and not for mineral.

### DRILL NUMBER 5.

Steam, Calyx, 6-inch core.

HOLE No. 1, bored at Inverness, for the Inverness Railway & Coal Co.. in search of coal. Commenced hole April 19, 1913. Finished hole May 1, 1913. Fastest rate of boring, 4 feet in an hour.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Clay .....	Red and grey, boulders.....	12	....	12	...
Clay .....	Red and grey, boulders .....	15	....	27	...
Marl .....	Red .....	4	....	31	...
Sandstone					
and Shale	Grey .....	2	....	33	...
Sandstone ....	Grey .....	3	....	36	...
Shale .....	Red and grey .....	5	....	41	...
Shale .....	Red .....	5	....	46	...
Sandstone ....	Grey .....	4	....	50	...
Standstone					
and Shale	Red and grey.....	15	06	65	06
"	Red and grey .....	6	....	71	06
"	Red and grey .....	12	....	83	06
Sandstone ....	Greenish grey .....	3	....	86	06
Shale .....	Red and greenish grey.....	13	06	100	...
Shale .....	Grey .....	10	....	110	...
Marl .....	Red .....	15	....	125	...
Sandstone					
and Shale	Grey .....	10	....	135	...
"	Grey .....	30	....	165	...
"	Grey and brown .....	14	....	179	...
Sandstone ....	Grey .....	13	....	192	...
Shale .....	Grey .....	2	....	194	...
Shale .....	Grey .....	3	....	197	...
Coal .....	Black .....	1	01	198	01
Fire-Clay ....	Very soft and clay.....	7	....	205	01
Shale .....	Grey .....	13	....	218	01

This hole cost \$507.50, or \$2.47½ a foot, as follows:—

Labor .....	\$209.25
Management .....	113.00
Fuel .....	25.00
Light, oil and waste .....	5.00
Shot .....	11.25
Lumber .....	23.00
Casing pipe .....	40.00
Freight and trucking .....	81.00

\$507.50

## DRILL NUMBER 5.

Steam Calyx, 6-inch core.

HOLE No. 2, bored at Inverness, for the Inverness Railway & Coal Co., in search of coal. Commenced hole May 15th, finished hole August 7th, 1913. Drill working double-shift, from May 19th to May 26th. Fastest rate of boring, 5 feet an hour.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Clay .....	Red .....	11	....	11	...
Sandstone ....	Grey .....	14	....	25	...
Marl .....	Red .....	5	....	30	...
Marl .....	Red .....	2	06	32	06
Sandstone ....	Grey .....	8	06	41	..
Shale .....	Red and grey .....	10	....	51	...
Shale .....	Grey .....	13	05	64	05
Marl .....	Red .....	5	....	69	05
Marl .....	Red .....	6	....	75	06
Shale .....	Red and grey .....	12	....	87	05
Sandstone ....	Grey .....	3	....	90	06
Shale .....	Red and grey .....	13	06	104	...
Shale .....	Grey .....	10	....	114	...
Marl .....	Red .....	15	....	129	...
Sandstone and Shale	Grey .....	16	....	145	...
Sandstone and Shale	Grey .....	24	....	169	...
Shale and Ironstone	Grey and brown .....	10	....	179	...
Shale .....	Grey and brown .....	4	....	183	...
Sandstone ....	Grey .....	13	....	196	...
Shale .....	Grey .....	5	....	201	...
Coal .....	Black .....	1	01	202	01
Fire-Clay ....	Grey .....	7	....	209	01
Shale .....	Grey .....	13	11	223	...
Shale .....	Grey .....	4	....	227	...
Coal .....	.....	3	03	230	03
Fire-clay ....	Blue .....	4	05	234	08
Fire-clay and Shales	Blue .....	12	....	246	08
Sandstone ...	Grey .....	2	02	248	10
Fire-clay and Shales	Blue .....	5	04	254	02

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Shales .....	Blue .....	2	03	256	05
Shales .....	Blue .....	13	07	270	..
Shales .....	Blue .....	4	07	274	07
Fire-clay and Shales	Blue .....	5	08	280	03
Fire-clay and Shales	Blue .....	3	....	283	03
Sandstone ....	Grey .....	1	....	284	03
Sand .....	Grey .....	9	08	293	11
Shales .....	Blue .....	1	06	295	05
Shales .....	Blue .....	2	09	298	02
Fire-clay .....	Dark-red .....	1	02	299	04
Shales .....	Blue .....	2	10	302	02
Fire-clay .....	Blue .....	2	04	304	06
Shales .....	Dark-red .....	1	....	305	06
Sandstone ....	Blue .....	5	08	311	02
Shales .....	Grey .....	1	04	312	06
Sandstone ....	Grey .....	4	04	316	10
Shales .....	Blue, soft .....	1	08	318	06
Shales .....	Blue, soft .....	4	11	323	05
Sandstone ....	Grey .....	....	09	324	02
Sandstone ....	Grey .....	15	01	339	03
Marl .....	Mottled and red .....	15	01	339	03

This hole cost \$1095.53, or \$3.22 a foot, made up as follows:—

Labor .....	\$332.40
Management .....	313.03
Fuel .....	64.50
Light. oil, waste .....	4.22
Shot .....	18.00
Lumber .....	3.25
Casing .....	248.36
Supplies, trucking and freight.....	111.77

\$1095.53

### DRILL NUMBER 6.

Steam, Calyx, core, 6 inches.

HOLE No. 2, in Albion mines: bored to convey compressed air from the McGregor-slope to the other steams overlying.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Shale and Coal	Black, thin bands .....	12	....	12	..
Shale and Coal	Black, thin bands .....	2	....	14	...
Shale and Coal	Black, thin bands .....	6	....	20	...
Shale .....	Grey .....	8	09	28	09
Shale .....	Grey and black .....	2	....	30	09
Shale .....	Grey and black .....	3	....	33	09
Shale .....	Grey and black .....	7	....	40	09
Shale .....	Grey and black .....	1	....	41	09
Shale and Coal	Black .....	4	06	55	03
Shale and Coal	Black .....	4	....	50	09
Shale and Coal	Black .....	4	03	59	06
Shale and Coal	Black .....	1	09	61	03
Shale and Coal	Black .....	7	10	69	01
Shale and Coal	Black .....	4	07	73	08
Shale .....	Grey .....	10	04	84	...
Shale .....	Black .....	4	07	88	07
Shale .....	Grey .....	22	03	110	10
Shale .....	Grey .....	7	02	118	...
Shale .....	Grey .....	10	....	128	...
Shale .....	Grey .....	8	03	136	03
Shale .....	Grey .....	5	03	141	06
Shale .....	Grey .....	15	09	157	03
Sandstone ....	Hard, flinty, grey-black .....	10	09	168	...
Sandstone ....	Hard, flinty, grey-black .....	3	....	171	...
Sandstone ....	Hard, flinty, grey-black .....	4	06	175	06
Sandstone ....	Hard, flinty, grey-black .....	3	09	179	03
Sandstone ....	Grey, hard and flinty .....	10	....	189	03
Coal .....	.....	12	04	201	07
Coal .....	.....	4	07	206	02

This hole cost \$256.48, or an average of \$1.24 a foot, made up as follows:—

Labor and management .....	\$232.73
Shot .....	9.00
Gravel .....	.75
Shot-bits .....	14.00
	<hr/>
	\$256.48

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
HOLE 3, in Albion Mines.					
Shales . . . . .	Black . . . . .	5	....	5	..
Shales . . . . .	Black . . . . .	5	06	10	06
Shales . . . . .	Black . . . . .	9	03	19	09
Shales . . . . .	Grey . . . . .	1	05	21	02
Shales . . . . .	Grey . . . . .	2	....	23	02
Shale and Coal	Black . . . . .	9	06	32	08
Shale and Coal	Black . . . . .	3	06	36	02
Shale and Coal	Grey . . . . .	4	07	40	09
Shale and Coal	Black . . . . .	8	08	49	05
Shale and Coal	Black . . . . .	16	01	65	06
Shale and Coal	Grey . . . . .	5	10	71	04
Sandstone ....	Grey, hard flinty . . . . .	1	02	72	06
Sandstone ....	Grey, hard flinty . . . . .	4	08	77	02
Sandstone ....	Grey, hard flinty . . . . .	3	03	80	05
Shales . . . . .	Blue . . . . .	5	07	85	...
Shales . . . . .	Black, thin bands of coal....	7	....	93	...
Shales . . . . .	Black, thin bands of coal ....	6	....	99	...
Shales . . . . .	Grey . . . . .	3	08	102	08
Sandstone ....	Grey, hard . . . . .	6	01	108	09
Shales . . . . .	Grey . . . . .	7	07	116	04
Shales . . . . .	Dark . . . . .	....	11	117	03
Shales . . . . .	Dark . . . . .	8	01	125	04
Shales . . . . .	Dark . . . . .	3	05	128	09
Shales . . . . .	Dark . . . . .	3	....	131	09
Shales . . . . .	Dark . . . . .	2	07	134	04
Shales . . . . .	Dark . . . . .	6	02	140	06
Shales . . . . .	Black . . . . .	3	06	144	...
Shales . . . . .	Black . . . . .	7	....	151	...
Shales . . . . .	Black . . . . .	1	....	152	...
Shales . . . . .	Black . . . . .	2	07	154	07
Shales . . . . .	Black . . . . .	9	....	163	07
Shales . . . . .	Black . . . . .	4	....	167	07

This hole cost \$630.77, or an average of \$3.22¾ a foot, made up as follows:—

Labor .....	\$205.45
Management .....	327.37
Shot .....	7.20
Fishing tap .....	46.00

Shot-bits .....	14.00
Shot barrels .....	30.00
Gravel .....	75
	<hr/>
	\$630.77

DRILL NUMBER 7.

Hand ro horse-power, Calyx, 15⁄8-inch core.

HOLE No 1, at Inverness, Cape Breton. Began boring March 6th, finished hole March 22, 1913. Fastest rate of boring, 3 feet in an hour, in sandstone. This hole was bored for the Inverness Railway & Coal Co., in search of coal.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Surface .....	Clay and sand, red .....	12	....	12	...
Surface .....	Clay and boulders .....	10	....	22	...
Surface .....	Clay and boulders .....	5	06	27	06
Sand and Gravel	Red .....	3	06	31	...
Sandstone	Grey .....	2	....	33	...
Sandstone and Shale	Grey .....	7	....	40	...
Sandstone	Grey .....	4	....	44	...
Shale	Grey .....	5	....	49	...
Shale	Grey .....	9	....	58	...
Sandstone ....	Grey .....	3	....	61	...
Sandstone and Shale	Grey .....	9	....	70	...
"	Grey .....	10	....	80	...
"	Grey .....	7	....	87	...
Fire-clay .....	Grey .....	3	....	90	...
Sandstone and Shale	Grey .....	7	....	97	...
"	Grey .....	7	06	104	06
"	Grey .....	7	06	112	...
"	Grey .....	3	06	115	06
Coal .....	Black .....	....	08	116	02
Coal .....	Black .....	2	....	118	02



This hole cost \$176.95 or \$1.50 a foot, made up as follows. —

Labor .....	\$32.00
Management .....	77.60
Shot .....	6.00
Man and horse .....	6.40
Freight and trucking .....	11.25
Water-supply .....	30.00
Lumber and rails .....	5.00
Repairs .....	8.70
	<hr/>
	\$176.95

### DRILL NUMBER 7.

Hand or horse-power, Calyx, 1½-inch core.

HOLE No. 2, at Inverness, Cape Breton. Began boring March 24 finished boring April 2, 1913; drill running single shift: fastest rate of boring, 3 feet in an hour. Hole bored for the Inverness Railway & Coal Co., in search of coal.

Name of Rock	Color and other general characteristics	Thickness bored		Total depth	
		Ft.	In.	Ft.	In.
Surface .....	Clay and boulders .....	20	....	20	...
Surface .....	Clay and boulders .....	5	....	25	...
Sandstone					
and Shale	Grey .....	5	....	30	...
Sandstone .....	Grey .....	4	....	34	...
Sandstone .....	Grey .....	5	....	39	...
Sandstone • .....	Grey .....	8	....	47	...
Sandstone					
and Shale	Grey .....	5	....	52	...
Coal and Shale	Black .....	1	....	53	...
Fire-clay .....	Grey .....	1	....	54	...
Fire-clay .....	Grey .....	2	....	56	...
Sandstone					
and Shale	Grey .....	15	....	71	...
Coal .....	Grey .....	12	....	83	...
Fire-clay .....	Black .....	....	05	83	05
Coal .....	Grey .....	....	04	83	09
Coal .....	Black .....	2	03	86	...
and Shale	Black .....	2	....	88	...
Shale .....	Grey .....	7	....	95	...

This hole cost \$118.75, or \$1.25 a foot, made up as follows:—

Labor .....	\$26.00
Management .....	46.56
Shot .....	3.00
Man and horse .....	13.19
Trucking .....	6.00
Water .....	24.00
	<hr/>
	\$118.75

## Successful Candidates, Mining Examinations, 1913.

Certificates of Competency and Certificates of Service were granted to the following applicants, after the annual examinations, for recommending certificates for managers, underground managers, overmen, and engineers, held in June, 1913.

### MANAGERS.

Simon J. Doucett.....	Inverness.
George Blackwood .....	Inverness.
William Hamilton .....	Inverness.
Hugh McLeod Peppard.....	Springhill.
Alex. K. McLeod .....	Springhill.
George Stevenson .....	River Hebert.
Alex. Sutherland .....	Westville.
Lawrence H. McKenzie.....	Westville.
John Newton Quinn.....	Glace Bay.
James H. Templeton.....	Broughton.
John P. McIntyre.....	New Waterford.
John Bisson .....	Dominion No. 6.
William D. Haley.....	New Waterford.
Daniel J. McCuish.....	New Aberdeen.
Water E. Hall.....	Glace Bay.

### UNDERGROUND MANAGERS.

Samuel Price .....	Inverness.
Peter J. Doucett.....	Inverness.
William F. Campbell.....	Springhill.
Thomas Barton .....	River Hebert.
Joseph Barton .....	River Hebert.
Donald McAskill .....	Westville.
George Nesbitt Reid .....	Westville.
Edward Allen .....	Stellarton.
James Mason .....	Stellarton.
Arthur Rivett .....	Caledonia Mines.
John J. McIntyre .....	Caledonia Mines.
William Blakey .....	Dominion No. 6.
Joseph A. McIsaac.....	New Waterford.
John W. McLeod.....	Dominion No. 6.
Chas. J. Guthro.....	New Waterford.
Mark Conway .....	New Aberdeen.
John James McDonald.....	Birch Grove.
Joseph Gillis .....	Glace Bay.
Patrick J. Lynch.....	New Waterford.
Arthur C. Ross.....	Reserve Mines.
Peter Baxendale .....	Sydney Mines.

Robert D. Matheson.....Dominion No. 6.  
 Thomas J. Casey.....Glace Bay.  
 William R. Cameron.....New Aberdeen.  
 Alexander Gillis .....Glace Bay.  
 William Hodge .....New Aberdeen.  
 William J. Graham.....New Waterford.

## OVERMAN.

John H. Kennedy.....Inverness.  
 John D. Ferguson.....Inverness.  
 Alexander J. Burden.....Springhill.  
 John W. Rees.....Joggins.  
 Dimock Leroy Millburn .....Joggins.  
 George R. Fairley.....Joggins.  
 John J. Johnson.....Joggins.  
 Walter Kirkwood .....Thorburn.  
 Roderick McNeil .....Stellarton.  
 David Henderson .....Westville.  
 William A. Taylor.....Westville.  
 John A. Livingstone.....Stellarton.  
 John Henry Livingstone.....Thorburn.  
 Murdoch K. McLean.....Thorburn.  
 Thomas McEwan .....Westville.  
 Angus McMillan .....Old Bridgeport.  
 William J. James.....New Aberdeen.  
 Thomas Knowles .....Caledonia Mines.  
 Anthony McCormick .....Bridgeport.  
 Louis J. McCormick.....Glace Bay.  
 Angus Murphy .....Dominion No. 4.  
 Allen Caldwell .....Dominion.  
 Pierce Corbett .....Dominion.  
 Daniel J. McLellan.....Caledonia Mines.  
 James Lawson Jobe.....Caledonia Mines.  
 Robert McInnis .....Dominion.  
 John H. McGregor.....Dominion No. 6.  
 John James McLeod.....Glace Bay.  
 John D. McMullin.....Glace Bay.  
 John Ramsdale .....Florence.  
 Henry A. Hines.....Dominion.  
 John D. McLean.....Dominion.

## ENGINEERS.

Frank Woisley, 1st Class, Competency,	Stellarton.
Daniel Lepper	Joggins.

Geo. H. Cumming, 2nd Class, Competency,		Stellarton.
Walter S. Drysdale,	"	Hazel Hill.
John A. Murray,	"	Westville.
George E. Dawson,	"	Westville.
Arnold Burke,	"	Joggins.
Clarence H. Brown,	"	West River Hebert
Arthur McLellan,	"	Dominion No. 4.
Andrew Harrietha,	"	Glace Bay.
John Carroll,	"	Caledonia Mines.
Alex. Brown,	"	Marconi Towers, Glace Bay.
Dan J. McDonald,	"	Glace Bay.
Henry Lewis,	"	Glace Bay.
Alex. McNeil,	"	Bridgport.
James A. Calder,	"	Glace Bay.
William Hart,	"	Dominion.
Harry McKenzie,	"	Reserve Mines.
Alex. Matheson,	"	Dominion No. 6.
Alex. McInnis, 3rd Class Competency,		Dominion No. 3.
Samuel McDougall,	"	Thorburn.
Edwin H. McDonald,	"	Stellarton.
Rod A. Johnson,	"	Stellarton.
Robt. W. Smith,	"	Thorburn.
Edison Brown,	"	Chignecto Mines.
James Gildart,	"	Springhill.
Patrick Farris,	"	Joggins.
William Babineau,	"	Joggins.
Charles Bigney,	"	Joggins.
Henry Burke,	"	Joggins.
Ernest Winters,	"	Chignecto.
Roy McLarry,	"	West River Hebert.
Dennis Chaisson,	"	Reserve Mines.
George Boyce,	"	Glace Bay.
Joseph Gallavan,	"	Reserve Mines.
John Gillis,	"	Dominion.
Frank Daley,	"	Dominion.
James Barry,	"	Glace Bay.
Dan McPherson,	"	Glace Bay.
Stanley Shand,	"	New Aberdeen.
Archy McDougall,	"	New Aberdeen.
Neil E. Townsend,	"	Louisburg.
John O'Brien,	"	Reserve Mines.
Francis Graham,	"	Florence.
Donald Morrison,	"	Florence.
John L. Nicholson,	"	Barrachois Harbor.
David West,	"	New Waterford.
Robert West,	"	New Waterford.

---

George H. Johnston,	2nd Class Service,	Sydney Mines.
Daniel Gillis,	3rd Class Service,	New Waterford.
John Morrison,	" "	Sydney Mines.
Martin Mattson,	" "	Florence.
George S. Boreman,	Fireman,	Dominion No. 4.
Joseph Parsons,	"	Glace Bay.
Charles Chappell,	"	Dominion.
William Reid,	"	Florence.
William McNeil,	"	Thorburn.
Alex. McEachern,	"	Thorburn.
William Gearro,	"	Stellarton.
Dougald Hicks,	"	Westville.
Alex. J. Urquhart,	"	Thorburn.

*Machinery at the Coal Mines in Nova Scotia, Year ended  
September 30th, 1912.*

DOMINION No. 1. CAPE BRETON COUNTY.

*Surface.*

One fan, 24 ft. diam., engine 18x24 in.; 1 engine, 16x30 in.

One fan, 12 ft. diam., engine 19x16 in.

One fan, 8 ft. diam., engine 10x12 in.

One engine, 15x30 in.

Two engines, 26x60 in.

Three compressors.

One 100-k.w. electric, 110-volt, generating unit.

*Underground.*

Three engines, 8x10 inches.

One engine, 9x10 inches.

One engine, 6x8 inches.

One pump, 560 gallons a minute.

One pump, 400 gallons a minute.

One pump, 500 gallons a minute.

One pump, 300 gallons a minute.

One pump, 550 gallons a minute.

DOMINION No. 2.

North deep:—One engine, 12 by 15 inches, double-cylinder, with 2700 feet of  $\frac{3}{4}$  rope.

Marion's deep:—One engine, 8 by 12 inches, double-cylinder, 300 feet of  $\frac{5}{8}$  rope.

No. 4, headway, north side:—One engine, 8 by 12 inches, double-cylinder, with 2400 feet of  $\frac{3}{4}$  rope.

Main south headway:—One engine, double-cylinder, 5000 feet of  $\frac{7}{8}$ -inch rope.

No. 2, headway, south:—One engine, 9 by 12 inches, double-cylinder, 2000 feet of  $\frac{3}{4}$ -inch rope.

Locomotives:—

Two air locomotives, 20 tons each, 11 by 14 inches.

One air locomotive, 17 tons each,  $10\frac{1}{2}$  by 14 inches.

Three air locomotives, 17 tons each,  $10\frac{1}{2}$  by 14 inches.

One air locomotive, 10 tons each, 7 by 14 inches.

One air locomotive, 7 tons, 7 by 12 inches.

Pumps:—

One pump,  $20\frac{1}{4}$  by 8 by 24 inches.

One (potvalve) 7 by 5 by 12 inches.

Two  $7\frac{1}{2}$  by  $4\frac{1}{4}$  by 10 inches.

One 7 by 4 by 12 inches.

One engine, 12 by 15 inches, double-cylinder, with 2500 feet of  $\frac{3}{4}$ -inch rope.

One engine 8 by 12 inches, double-cylinder, on No. 1 headway 2600 feet, of  $\frac{5}{8}$ -inch rope.

One engine, 18 by 12 inches, double-cylinder, with 1200 feet of  $\frac{5}{8}$ -inch rope, south deep sinkings.

### *Surface.*

One hoisting-engine, 34 by 48 inches, double-conical-drum, 18 by 12 feet diameter, and width 5 feet.

One man-engine, 24 by 42 inches, with double-conical-drum, 18 by 12 feet diameter, width 5 feet.

Two fan-engines, corliss, 20 by 42 inches.

One exhaust turbine engine, 1000 kilowatts, 1500 revolution.

One motor, 20 h. p., running loading belts.

One motor, 75 h. p., 480 revolutions, running screen-and-picking belts.

One air-compressor, steam end, 31 by 57 by 60 inches, air end, 51 by 32 by 60 inches, capacity 6300 cubic feet a minute.

Three air-compressors, steam end, 20 by 36 by 48 inches: air end, 22 by 20 by 48 inches. Capacity 3000 cubic feet of air a minute.



Two high-pressure compressors—steam end, 20 by 38 by 36 inches; air-end, 23 by 16 by 8 by 36 inches, capacity, 1380 cubic feet a minute.

Three electric engines, 20 by 40 by 36 inches; capacity 350 kilowatts.

Two ideal electric engines—12 by 12 inches, capacity 75 kilowatts.

One duplex pump—14 by 12 by 10 inches, 800 gallons a minute.

One duplex pump, 16 by 12 by 12 inches, 800 gallons a minute.

#### DOMINION No. 3.

##### *Underground.*

One 7 by 14 by 12-inch pump in a large lodgement below No. 18 levels. This pump is discharging all the mine-water into the No. 4 mine.

##### *Surface.*

Three boilers, 318 h. p. each.

One boiler, 100 h. p.

One boiler, 90 h. p.

One compressor, capacity 60,000 cubic feet a minute, steam, high-pressure cylinder 31 inches, low pressure steam 57 inches, air high-pressure cylinder 32 inches, low-pressure air 51 inches, stroke 60 inches.

Haulage engine, 22 by 42 inches.

Screen engine, 12 by 34 inches.

Fan, 13½ by 7½ inches.

Fan engine, 18 by 18 inches.

#### DOMINION No. 4.

##### *Surface.*

One hoisting engine, 20 by 48 inches.

One man-engine, 18 by 24 inches.

One pumping-station engine, 20 by 42 inches.

One lamp-cabin engine, 4 by 6 inches.

One box-car-loader engine, 10 by 14 inches.

One engine, 22 by 42 inches.

One compressor, steam-cylinder, 20 by 36 by 48, air 20 by 32 by 48 inches.

One compressor, steam-cylinder, 22 by 38 by 48, air 22 by 36 by 48 inches.

One fire pump, 14 by 9 by 12 inches.

Two feed pumps, 7½ by 4½ by 10 inches.

One small engine (machine shop) 4 by 6 inches.

One saw-mill engine, 8 by 24 inches.

One fan-engine, 18 by 36 inches.

One fan-engine, 11 by 20 inches.

One screen-engine, 12 by 34 inches.

Seven batteries of boilers, 1773 h. p. Three tubular boilers at pumping-station 225 h. p.

#### *Underground.*

Two small main-and-tail rope engines. One turbine pump, capacity 420 gallons a minute. One five-throw pump, capacity 600 gallons a minute. One pump, 250 gallons a minute. These pumps are operated by electricity.

One pump, capacity 300 gallons a minute.

Four small pumps.

One small pump. These are operated by compressed air. The average quantity of water pumped daily from this mine is 1,148,320 gallons.

#### DOMINION No. 5.

#### *Underground.*

One pump 14 by 7 by 18 inches, one pump 14 by 9 by 33 inches, one 16 by 7 by 10 inches, one main-and-tail-rope engine 14 by 20 inches, one engine 14 by 20 inches, two turbine pumps, operated by electricity.

*Surface.*

One haulage-engine 28 by 60 inches, one engine 16 by 22, one engine 9 by 14, one engine 18 by 22, two compressors, capacity 2500 feet a minute each, one compressor, capacity 2,500 cubic feet a minute, one duplex pump 14 by 7 by 13 for fire purposes, a pump 14 by 8½ by 12 inches, seven boilers, 1,878 h. p., fitted with forced-draft blowers, and fed with two duplex outside-packed plunger-pumps, 10 by 6 by 12 inches.

## DOMINION No. 6.

*Underground.*

There are fifteen engines placed in this mine.

One pump, 16 by 8½ by 33 inches.

One duplex pump, 30 by 8 by 24 inches.

The engines and pumps are driven by compressed air.

*Surface.*

One engine, 26 by 58 inches.

Two compressors, 3500 cubic feet a minute, capacity.

One pump, capacity 500 gallons a minute. This pump is for fire purposes.

Six boilers, 1500 h. p., with forced-draft blowers.

A main-and-tail-rope engine was erected on number 4 and 5 west levels.

## DOMINION No. 7.

*Surface.*

One-man cage; two dumping-hoisting cages; two conveyor belts, length 14 feet, width 3 feet; two sets of shaking-screens, three screens to a set. Two picking-belts, length 41 feet, width 5 feet. One loading-belt, length 35 feet, width 3 feet 6 inches. All bank machinery is electrically driven by two 75-h.p. motors. Coal-hoisting pulleys, 12 feet in diameter; man-cage-pulleys, 6 feet in diameter.

One hoisting-engine, 54 by 42 inches, first-motion, diameter of drum, 8 feet 6 inches.

One man-cage-engine, 18 by 26 inches, first-motion, diameter of drum, 6 feet.

Two compressors, compound steam-end, 20 by 34 inches, air-end 19 by 30 inches, capacity 2,000 cubic feet a minute.

Fan-engine, 12 by 15 inches, 100 h. p.

Banking-station engine, first-motion, loose drum, made up as follows: right-hand engine, 18 by 36 inches, left-hand engine, 18 by 36 inches.

One feed-pump,  $7\frac{1}{2}$  by  $4\frac{1}{2}$  by 10 inches.

One duplex-pump, 14 by  $7\frac{1}{2}$  by 12 inches.

One duplex-circulating-pump,  $5\frac{1}{2}$  by  $3\frac{1}{2}$  by 6 inches.

One vacuum feed-water heater.

One motor, one-half h. p.

One motor,  $2\frac{1}{2}$  h. p.

#### *Underground.*

Endless haulage on the main deep. Plane rope haulage from the sinkings to the endless haulage. There was a main-and-tail-rope engine placed to haul the coal from No. 4 north level section to the endless haulage. The endless haulage was extended 820 feet, One single-drum engine. 8 by 12 inches.

One engine, 8 by 10 inches, second-motion.

One marine engine 7 by 12 inches, second-motion.

One electric haulage engine, third-motion, driven by a motor.

One pump, 10 by 24 inches, single-acting, driven by a 75-h.p. motor.

One turbine, 3-stage 5-inch pump.

One duplex, 16 by 18 by 18 inches.

Two pumps, 14 by  $*\frac{1}{2}$  by 18 inches, located at lodgment below No. 3 south levels.

Two pumps, 7 by  $4\frac{1}{2}$  by 12 inches, in deeps for sinking purposes.

One pump, 7 by  $4\frac{1}{2}$  by 12 inches, in No. 2 south.

One pump, 7 by  $4\frac{1}{2}$  by 12 inches, in No. 4 north.

One pump,  $7\frac{1}{4}$  by  $4\frac{1}{2}$  by 10 inches, in No. 4 south.

Main haulage rope,  $1\frac{1}{8}$ -inch diameter. Donkey haulage rope  $\frac{5}{8}$ -inch diameter.

## DOMINION No. 8.

*Surface.*

One winding-engine, 16 by 30 inches, drum 6 feet.

One bank-engine, 9 by 16 inches, drum 20 inches.

One engine (machine shop), 7 by 9 inches.

One endless-haulage-engine, 18 by 36 inches.

One fan-engine, 9 by 12 inches.

One pump, 14 by 7 by 12 inches, (for fire purpose).

One feed-pump, 6 by 10 inches.

One feed-pump, 4 by 10 inches.

One electric motor.

Two return tubular-boilers, 50 h. p. each. Two boilers of 212 and 318 h. p.

*Underground.*

Two turbine pumps kept for emergency purposes in case of accident to water hoist.

## DOMINION No. 9.

*Surface.*

Coal-hoisting-engine, 24 by 42, drum 8 feet diameter, 2 feet 7 inches wide; rope,  $1\frac{3}{8}$  inches.

Man-shaft-engine, 18 by 36, drum 8 feet diameter, 2 feet 7 inches wide; rope,  $1\frac{1}{4}$  inches.

Fan-engine, cylinder, 16 by 30 inches.

Fan, cylinder, 16 by 30 inches.

Ventilating fan, 24 feet 6 inches diameter.

*Underground.*

Main north deep, one engine, 14 by 20 inches; rope,  $\frac{7}{8}$  inch.

North headway, one engine, 9 by 10 inches; rope,  $\frac{7}{8}$  inch.

No. 1, north level, one engine, main-and-tail, 9 by 10 inches rope,  $\frac{5}{8}$  inch.

No. 3, north level, one engine, 8 by 10 inches; rope,  $\frac{3}{4}$  inch.

Near face, north deep, one engine  $8\frac{1}{2}$  by 15 inches; rope,  $\frac{5}{8}$  inch.

Main south level, one engine, 14 by 20 inches; rope,  $\frac{7}{8}$  inch.

No. 3, south level, one engine, main-and-tail, 9 by 10 inches; rope,  $\frac{5}{8}$  inch.

No. 2, south headway, one engine, 8 by 10 inches; rope,  $\frac{3}{4}$  inch.

Near face, south deep, one engine, 6 by 8 inches; rope,  $\frac{5}{8}$  inch.

Air-locomotives :—

One, south motor-road, weight 17 tons,  $10\frac{1}{2}$  by 14 inches.

One, south motor-road, weight 10 tons, 7 by 14 inches.

One, north motor-road, weight 7 tons, 7 by 12 inches.

One pump, near pit bottom, 12 by 24 by 8 by 24, compound.

One pump, near pit bottom, 20 by 8 by 24 inches, compound.

One pump, near pit bottom, 18 by 33 by 9 inches.

One pump, south deep,  $7\frac{1}{4}$  by  $4\frac{1}{2}$  by 10 inches.

One pump, south deep, 14 by 8 by 18 inches.

One pump, water level (south),  $7\frac{1}{4}$  by  $4\frac{1}{2}$  by 10 inches.

One pump, north deep,  $7\frac{1}{4}$  by  $4\frac{1}{2}$  by 10 inches.

One pump, north deep, 7 by  $4\frac{1}{2}$  by 12 inches.

One pump, 14 by 8 by 18 inches.

One pump, spare, 12 by 14 by 7 inches.

#### DOMINION No. 12.

##### *Surface.*

One fan, 11 feet diameter, engine, 15 by 30 inches.

One cross-compound compressor, 3300 feet air a minute.

One 800 h. p. motor.

One engine, 1800 h. p., 30 by 48 inches.

One 600 h. p. motor.

One compressor, 16 by 24 inches, 400 feet of air a minute.

Two boilers, 500 h. p.

Two boilers, 420 h. p.

One engine, 6 by 8 inches.

One engine, 8 by 8 inches.

One car-haul, tippie and picking belts.

*Underground.*

One pump, 18 by 18 by 24 inches.

Three pumps, 7½ by 4 by 10 inches.

DOMINION No. 14.

*Surface.*

One fan, 11 feet diameter.

One 30-h.p. motor.

One compressor, 30 by 19 by 30 inches, 3300 cu. feet a minute.

One 600-h.p. induction motor.

Two boilers, 200 h.p.

Two boilers, 100 h.p.

One engine, 14 by 20 inches.

One 20-h.p. induction motor.

One car-haul, and 1-30-h.p. motor.

*Underground.*

One pump, 16 by 9 by 33 inches.

Three pumps, 7 by 4½ by 12 inches.

One pump, 500 gallons a minute.

DOMINION No. 15.

*Surface.*

One fan, 14 feet diameter, 60,000 cubic feet air a minute.

One engine, 14 by 20 inches, 150 h. p.

One compressor, 2000 cubic feet of air a minute.

*Underground.*

One pump, 14 by 7 by 24 inches, with auxiliary pump, 14 by 5½ by 18 inches.

Four pumps, 7 by 4½ by 12 inches.

Four engines, 7 by 10 inches.

## DOMINION No. 16.

*Underground.*

One electric engine, 300 h. p.

One engine, 7 by 10 inches.

One fan, 5 by 10 feet.

One pump, 12 by 6 by 18 inches.

Four pumps, 7 by 4½ by 12 inches.

Four engines, 7 by 10 inches.

## DOMINION No. 21.

One fan, 12 feet diameter, capacity 100,000 cubic feet.

One boiler, 54 inches diameter by 12 feet high.

One 35 h. p. motor.

One car-haul and rotary-tipple.

One 50-h.p. motor.

## SYDNEY No. 1.

*Surface.*

One hoisting engine, 36 by 60 inches.

One hoisting engine, 16 by 30 inches.

One haulage engine, 16 by 30 inches.

One compressor, steam-cylinders, 24 by 46 inches; air-cylinders, 26 by 42, 4000 cubic feet a minute.

The ventilating equipment is at Sydney No. 5, 3000 feet **away**, on the same seam.

Six boilers, 272 h. p.

One boiler, 108 by 64 inches, draft-fan.

One engine, 1 ash-crusher, and elevator.

*Underground.*

One pump, 8 by 12 inches.

Seven pumps, 5½ by 6 by 3½ inches.

One pump, 15 by 28 by 8½ by 24 inches, 600 gallons a **minute**.

One jet condenser.



*Haulage :—*

The south side is operated by endless haulage, 9240 feet in length. The haulage is in the form of a loop, and has a little more than 25,000 feet of rope in service. Size of rope,  $1\frac{1}{8}$  inch.

The north side is operated by a plane haulage system, two ropes 7,200 feet long.

*SYDNEY No. 2.**Surface.*

One fan, 15 by 10 feet; engine, 9 by 9 inches.

One engine (tandem), 14 by 24 by 42 inches, haulage.

(Compressed air is furnished from Sydney No. 1).

One fan, 15 by 7 feet.

Tipple, screens and picking-belt in duplicate, capacity 75 tons an hour.

*Underground.*

One pump, 20 by  $10\frac{1}{2}$  by 20 inches.

One pump, 18 by 8 by 12 inches.

Three auxiliary pumps.

*SYDNEY No. 3.*

One engine, 14 by 24 by 42 inches.

One fan, 15 by  $7\frac{1}{2}$  feet, and engine, 24 by 24 inches.

One auxiliary fan, and engine, 12 by 12 inches.

Tipple, screen, and picking-belt, capacity 75 tons an hour.

One compressor, air-cylinders, 38 by 22 inches; steam-cylinders, 20 by 40 by 36 inches; capacity, 3500 cubic feet a minute.

One compressor, air-cylinders, 36 by 22 inches; steam-cylinders, 21 by 40 by 48 inches; capacity, 3000 cubic feet a minute.

Six 232-h.p. boilers

One fan, 110 by 48 inches, capacity, 60,000 cubic feet a minute.

One draft-fan.

*Underground.*

Thirteen 5 by 6-inch friction-drum engines.

Two 7 by 9-inch friction-drum engines.

One 6 by 8-inch friction-drum engine.

Three pumps—1-12 by 6 by 14 inches, 1-12 by 6½ by 14 inches, 1-4½ by 2½ by 4 inches.

One pump, 10 by 8 by 4½ inches.

Two pumps—1-10 by 4½ by 8 inches, 1-8½ by 5 by 10 inches.

## SYDNEY No. 4.

*Surface.*

One haulage-engine, 16 by 24 inches; drums, 6 feet.

One boiler, 100 h. p.; two boilers, return-tubular.

One fan, 4½ by 5 feet; engine, 14 by 12 inches.

Two 100 k. w., 250-volt motors; engine, 16 by 16 inches.

*Underground.*

One 7-stage turbine pump, 250 gallons a minute.

Two 55 h.p. motors.

Two pumps (triples), 43 gallons a minute.

Two 20-h.p. pump.

Two 5-h.p. worm-pumps, 15,000 gallons an hour.

Thirteen double-friction motor-driven hoists.

One 11-h.p. motor.

Seventeen electric coal-cutting machines.

## SYDNEY No. 5.

*Surface.*

One hoisting-engine, 14 by 36 inches, with safety catches.

One haulage-gear (electric), 75-h.p., 240 volts.

One set, shaking-screens, with picking-belts, 47 feet.

One 35-h.p., 240-volt motor.

One 20 by 5½ feet, steel-plate fan, 120,000 cubic feet a minute.

One 120-h.p. fan-motor.

One 30 by 10 feet fan, connected to engine, 22 by 24 inches.

Two fans.

This plant ventilates Sydney No. 1 mine.

*Underground.*

One pump, 30 by 48 inches, capacity, 18,000 gallons an hour.

INDIAN COVE MINE.

One engine, 20 h. p.

COLONIAL MINE.

*Surface.*

One fan, 64 inches diameter, with engine, 10 h. p.

Two return-tubular boilers, 80 h. p. each.

One engine, 50 h. p.

One engine, 10 by 12 inches.

One engine, 60 h. p.

*Underground.*

Two pumps, 12 by 13 by 7 inches.

One pump, 12 by 13 by 6 inches.

MACKAY MINE.

One fan, 6 feet diameter, capacity, 200,000 cubic feet a minute.

One fan-engine, 6 by 9 inches; 1 tubular boiler, 120 h. p.

One boiler, 80 h. p.; 1 boiler, 200 h. p.

One hoisting-engine, 7 by 12 inches; 1 electric-hoist, 50 h. p.

One motor, 5 h. p.; 1 motor, 75 h. p., for briquette machine.

One engine, 60 h. p.; 1-45 kwt. generator.

*Underground.*

One pump, capacity, 4500 gallons an hour; 1 pump, capacity 1800 gallons an hour.

## ALBION MINES. PICTOU COUNTY.

*Surface.*

One engine, motor 320 h. p. ; 2 compressors, electrically-driven, capacity, 1600 feet of air, motors, 320 h. p. each.

One hoisting-engine (McGregor slope), motor 320 h. p.

One screening plant (electrically-driven), with motors, as follows:—

	H.P.	Rev. a.m.	Volts.
Main picking-belts, screens, and conveyors..	45	750	500
Box-car loading-conveyor and elevating gear	25	"	"
For picking-belts .....	25	"	"
Car-haulage (1) .....	25	"	"
Car-haulage (2) .....	10	"	"
Creeper .....	10	"	"
Knocking screen .....	10	"	"
Three down car-hauls .....	10	"	"
Full trip hauls .....	10	"	"
Main tipples .....	10	"	"
Tipples, house-coal, stone, and refuse, carpenters' shop, and machine shops.....	45	"	"

*Underground.*

Two underground electric pumps are placed in the McGregor mine, from which all the water from the Albion and McGregor is pumped: 7 stage centrifugal-pumps, with a capacity of 550 gallons each a minute against a head of 1480 feet, directly coupled to 440-h.p. motors, taking 3000 volts at 3000 revolutions a minute. The cables are taken down each side of slope, and are protected by being placed in a box-drain of 3-inch plank. There has also been erected at Albion mines a fan 12 feet 6 inches diameter and 4 feet wide, with a capacity of 100,000 cubic feet a minute, speed 215 revolutions, with a 5½-inch w. g. This fan is rope-driven by a motor 150 h. p., 750 revolutions a minute, volts 3000. This fan is in operation now, and gives very good results. A duplicate is being placed for the McGregor seam, which was put in operation January 1st, 1913.

## VALE MINE.

*Surface.*

Three boilers, 200 h. p. each.

One return-tubular, 50 h. p.

One hoisting engine, 16 by 39, geared  $2\frac{1}{2}$  to 1, drum 8 feet.

One engine, 8 by 12 inches (single).

One engine, 8 by 12 inches (single) at screening plant.

One compressor,  $17\frac{1}{2}$  by 24 by 20 inches.

One compressor, 17 by 42 by  $18\frac{1}{2}$  inches.

One fan, 28 feet, directly connected to an engine, 20 by 24 inches, producing 36,000 cubic feet of air at 60 revolutions a minute, w. g., 3 inches.

One duplex pump, 4 by 8 by 12 inches, at reservoir.

One duplex feed-pump, 4 by 8 by 12 inches.

One dynamo, 125 volts, for lighting plant.

350 feet of  $2\frac{1}{2}$ -inch hose for fire protection.

One pump, 8 by 5 by 12 inches.

The reservoir contains a supply of from  $2\frac{1}{2}$  to 3 million gallons of water.

*Underground.*

One engine, 10 by 12 inches, geared  $5\frac{3}{4}$  to 1, rope  $\frac{5}{8}$  inch.

One engine, 7 by 12 inches, geared 4 to 1, drum 3 feet 3 inches, bottom of No. 1 balance, north side.

One pump, 4 by 8 by 12 inches, at No. 8 level.

One pump, 5 by 12 by 12 inches, No. 7 level.

One pump, 5 by 12 by 12 inches, east side, 2400 feet level.

One compound pump, 12 by 24 by 8 inches, capacity, 16,500 gallons an hour, at 1800 feet level.

The pump discharges all the water in the mine, to the surface. It is steam-driven. All other machinery and engines in the mine are air-driven.

The ropes on the main hoistings are 1 inch; on the angle deeps,  $\frac{5}{8}$  inches, and on balances and inclines,  $\frac{1}{4}$  inch.

## ACADIA MINE.

*Surface.*

One engine, 32 by 60 inches, drum 10 feet, at main slope, rope  $1\frac{1}{8}$  inch.

One engine, 12 by 12 inches, drum 4 feet, at travelling slope, rope  $\frac{3}{4}$  inch.

One engine, 8 by 8 inches, machine shop.

One engine, 12 by 24 inches, at screening plant.

One engine, 7 by 11 inches, for timber.

One fan, 13 feet 6 inches, rope-driven.

Fan engine, 100 h. p.

Two compressors, air-end, 20 by 24 inches, steam-end, 30 by 36 inches.

One compressor, 16 by 34 inches.

One pump, 6 by 6 by 3 inches, capacity 900 gallons an hour, in compressor house.

Five boilers, 150 h. p. each.

One boiler, 150 h. p.

*Underground.*

One engine, 7 by 10 inches, geared 7 to 1, drum 2 feet, at No. 12 south level.

One engine, 8 by 12 inches, geared 5 to 1, drum 2 feet at No. 12 north level.

One pump, 6 by 6 by 3 inches, at No. 13 lift.

One pump, 5 by 12 by 4 inches, at No. 12 level.

One pump, 8 by 14 by 16 by 4 inches, No. 10 level.

One pump, 6 by 7 by 6 inches, north side, No. 6 level.

The water is carried by these pumps in relays into the dams to No. 6 pump, which discharges all the water of the mine to the surface. No. 6 pump is 14 by 22 by 24 by  $5\frac{1}{2}$  inches, steam-driven. All the pumps below this are air-driven.

## DRUMMOND MINE.

*Surface.*

- One engine, 24 by 42 inches, at No. 2 slope.
- One engine, 28 by 60 inches, at No. 1 slope.
- One engine, 16 by 24 by 26 inches, at No. 4 slope.
- One engine, 8 by 12 inches, at No. 2 screen.
- One engine, 8 by 12 inches, at No. 3 screen.
- One engine, 8 by 12 inches, at conveyor and box cars.
- One engine, 10 by 15 inches, on bankhead.
- One 12 by 24 inches, conveyor.
- One engine, 7 by 10 inches, at fan-shaft.
- One engine, 8 by 10 inches, machine-shop.
- One engine, 14 by 24 inches, brick-plant.
- Two engines, 8 by 12 inches, wash-plant.
- One compressor, 2 by 2½ by 39 by 22 by 35 inches, fan-shaft.
- One compressor, 18 by 30 inches, fan-shaft.
- One fan, 20 feet 6 inches, rope-driven, w. g., 6.5.
- Five water-tube boilers, 1000 h. p.
- One boiler, 200 h. p.
- Five boilers, 900 h. p.
- Three boilers, 180 h. p., Scott pit.

*Underground.*

- One engine, 7 by 10 inches, travelling slope, No. 18 lift.
- One sinking engine, 10 by 12 inches.
- One engine, 12 by 15 inches, No. 4 slope.
- Engines air-driven. Ropes, self-acting inclines, ½ inch.
- One pump, 7 by 10 by 3½ inches, No. 19 lift.
- One pump, 10 by 12 by 4 inches, No. 18 lift.
- One pump, 14 by 12 by 5 inches, No. 17 lift.

One pump, 14 by 18 by 4 inches, No. 14 lift.

One duplex pump, 11 by 5 by 18 inches, No. 9 lift.

All air-driven.

One pump, 8 by 14 inches, steam-driven, No. 5 lift.

This pump discharges all the water to the surface, head 325 feet.

One pump, 10 by 18 by 4 inches, No. 6 lift, No. 4 slope. This pump discharges to No. 5 lift.

All the colliery buildings are equipped with patent fire-extinguishers.

There are four hydrants connected to the town water supply, 700 feet of 2½-inch hose. Two large reservoirs, which can be connected to feed pumps in a few minutes.

#### ALLAN SHAFTS.

##### *Surface.*

Two hoisting-engines, 20 by 30 inches, drum 7 feet 6 inches by five feet, No. 1 shaft, and No. 2 shaft.

One vertical-engine, 8 by 10 inches, No. 1 bank.

One hydraulic-hoist. No. 1 shaft.

One engine, 20 by 20 inches; screens and picking-belts.

One fan, 26 by 8 feet, w. g., 3.8 inches.

One fan-engine, 13 by 24 inches.

One radial-drill, 4 feet, blacksmith's shop.

One lathe.

One bolt and nut-threading machine.

Six boilers, 450 h. p., fitted with super-heaters and chain-grate stokers.

Two feed-pumps.

The boilers which have been in use, have been taken out. The plant at this mine supplies all the electrical power for operating the Albion mines. Two electric motors have been placed, one in the blacksmith shop, one in the carpenter's shop.



*Underground.*

One engine, 8 by 8 by 12 inches, drum, two feet, southwest level, used in sinking the Cage-seam.

One pump, 12 by 7 by 4 inches, capacity 200 gallons a minute, at the 1200 feet level, No. 1 shaft.

Two large electric, five stage-pumps, 3000 volts, capacity 550 gallons a minute, each, against a head of 1040 feet, at 962 feet level, No. 1 shaft.

## INVERNESS MINE. INVERNESS COUNTY.

*Surface.*

The steam-generating plant consists of four 212-h.p. boilers, and two 250-h.p. boilers, arranged in three batteries, all water-tube. These boilers are fed by a duplex-pump, 7 by 4.5 by 10 inches, as an auxiliary: the boilers are equipped with one 1.5-inch and one 2-inch injectors for each battery: two 15-h.p. vertical-boilers: one 35-h.p. vertical-boiler, in good condition, but not in use, a total of 1,413 horse-power. One double-haulage engine, 16.5 by 30 inches, geared 3 to 1; diameter of drum 7 feet 10 inches, and width of face, 3 feet 6 inches; containing each 5500 feet of 1½-inch plough-steel ropes; speed 200 revolutions a minute, steam pressure 100 pounds to the square inch: one 100-h.p. haulage-engine for travelling-slope, 12 by 16 inches, geared 7 to 30, diameter of drum 4 feet, containing 4000 feet of 1-inch plough-steel rope: one 20-h.p. engine, geared to single drum, used in yard to dispose of mine waste by lowering boxes to dump at shore, this engine is now used as a tail-rope engine, having been equipped with an additional drum for this purpose: one 35-h.p. and one 15-h.p. geared-hoists, the former with tandem drum, not in use at present: one 12 by 12-inch, 70-h.p., horizontal centre-crank engine used to operate the coal washery; one 11 and 18 by 18-inch cross-compound non-condensing high-pressure steam-engine, 90 h.p., to be used to operate the coal-briquetting plant: one direct-current dynamo and engine, 6 pole, 400 amperes, 125-volt dynamo direct connected to a 75-h.p. engine 12 by 12 engines, 280 revolutions a minute, capacity 900 standard 16-c.p. lamps: one, two-stage air-compressor, cross-compound steam and air, capacity 3,100 cubic feet of air a minute; steam end, 20 and 36 by 48 inches, air cylinders, 19¼ and 32¼ by 48 inches stroke, corliss steam-valve gear; air and steam pressure, 100 pounds to the square inch; one compressor, size 12 by 18 inches, not in use; one patent and indestructible fan and engine, size of fan 18 by 7 feet, speed 100

revolutions a minute, w. g. 2.8 inches; single-engine, 16 by 30 inches, connected to fan by five 3-inch cotton ropes; ratio of fan and engine 12 to 9 revolutions; one fan, 84 by 18 inches: one compound pump at Big River, used to supply boilers at mine should the town water be shut off: one pump 5 by 7 by 8 inches: one pump, 10 by 4.5 by 18 inches, used for cleaning boilers and for fire purposes: one duplex feed-pump, 7 by 4.5 by 10 inches: two shaking-screens, feeders, tipples and picking-belts, run by two 8 by 8-inch vertical-engines: one conveyor and one elevator, driven by  $1\frac{1}{8}$ -inch rope-drive by an 8 by 8-inch vertical-engine: one double chain-creeper, driven by  $1\frac{1}{8}$ -inch rope-drive by a 10 by 10-inch engine: one 1500 h.p. vertical closed-type, feed-water heater; briquetting plant complete with non-condensing engine and boiler and all accessories, capable of producing 100 tons of briquettes a day of 10 hours.

*Underground.*

One hoist, 7 by 9 inches, sinking; one pump, 18 by 30 by 12 by 20 inches; one pump, 500 gallons a minute; one pump, 30 by 9 by 36 inches; one pump, 700 gallons a minute; one pump, 20 by 9 by 20 inches; one pump, 18 by 9 by 20 inches; one pump, 18 by 7 by 20 inches; one pump, 16 by 6 by 18 inches; one pump, 10 by 5 by 13 inches; two pumps, 12 by 6 by 18 inches; one pump, 10 by 5 by 13 inches; one pump, 5 by 3.5 by 7 inches.

SPRINGHILL, No. 2 MINE. CUMBERLAND COUNTY.

*Surface.*

Winding engine, direct acting-link-reversing-cylinders, 30 by 48 inches, drum, 7 feet diameter, 5 feet face, 6000 feet of  $1\frac{1}{4}$ -inch rope.

One engine, 20 by 18 inches, 260 horse-power.

One horizontal-engine, 12 by 30 inches. 120 h. p. used for driving rotary-screen.

One horizontal-engine, 8 by 12 inches, running fire-door conveyors, 21 h. p.

Four vertical-engines—8 by 10 inches. 16 h. p. running picking-belts.

One vertical jigging-screen engine, 7 by 8 inches, 10 h. p.

One small vertical engine, 4 by 6 inches, running lamp-cleaning machine.  $1\frac{1}{3}$  h. p.

One patent blow, double-inlet fan, 15 feet by 5 feet, capacity 150,000 cubic feet of air a minute: 9-inch w. g., and 240 revolutions.

Twelve boilers: two 7 by 30 feet, with 2 flues 33 inches, 176 h. p.

Four 72 by 20-inch boilers, corrugated furnace, 200 h. p. each.

Six double-flue cylinder boilers, 5 by 30 feet, with 2 flues 18 inches diameter. Maximum working steam pressure, 90 pounds, 150 horse-power.

#### *Underground.*

One haulage engine, 16 by 20 inches, geared with four drums, 5 feet, width 2 feet. 9700 feet of  $\frac{1}{2}$ -inch rope.

One duplex double-plunger pump, 28 by 9 by 36 by 10 inches, suction and discharge: capacity 500 gallons a minute, head 644 feet, at 1300 level.

One duplex double-plunger pump, 22 by 7 by 24 by 8-inch suction and discharge: capacity 332 gallons a minute, 460 feet head at 2400 level.

Two pumps in duplicate, size 23 by 10 by 30 inches, capacity at 46 strokes, 469 gallons a minute, at 3400 level.

#### SPRINGHILL No. 3 MINE.

##### *Surface.*

One winding-engine, 30 by 48 inches, drum 7 feet diameter, 5 feet face: 6000 feet of  $1\frac{1}{4}$ -inch rope.

One double-cylinder hoisting-engine, 6 by 12 inches, 18 h.p. maximum hoisting load 6 tons.

One fan-engine, cylinder 24 by 24 inches: 500 h. p., at No. 3 slope.

Four vertical-engines, 8 by 10 inches, 16 h. p. each: three used for picking-belt and one used for conveyor at boiler.

One vertical engine, 12 by 15 inches, 60 h. p.

One horizontal engine, 10 by 10 inches: 56 h. p. (right-hand engine).

One horizontal engine, same as last. (left-hand engine).

One engine, 12 by 24 inches, 83 h. p., in machine shop.

One engine, duplicate of above, now in stock.

One patent blow fan, double inlet, diameter 22 feet, 3 feet 6 inches wide, capacity 150,000 cubic feet of air a minute.

One battery of twelve boilers, double-flue, 5 feet diameter 30 feet long, average grate area 36 square feet. 150 h. p.

One air-compressor, high pressure steam-cylinder, 20 by 36 inches stroke; low-pressure steam-cylinder, 36 by 36 inches stroke; high pressure air-cylinder, 20 by 36 inches stroke; low-pressure air-cylinder, 33 by 36 inches stroke. Capacity in free air a minute 3384 cubic feet, at 95 revolutions a minute.

### *Underground.*

One fire-pump, 16 by 9 by 12 inches, 750 gallons a minute.

Special double-cylinder engine, 10 by 12 inches, drum 36 inches diameter, 30 inches face, geared 5 to 10, friction brake, with capacity of 5000 pounds.

One haulage-engine, 16 by 20 inches, four drums, link reversing, diameter of drums, 5 feet, width 2 feet, 9700 feet of 1-inch rope.

One compound-condensing mine pump, 22 and 40 inches by 10 by 36 inches, with independent condensor 10 by 12 by 18 inches at 3200 level, capacity 7500 gallons a minute, head at 1300 feet level 893 feet.

One pump, 22 by 9 by 30 inches: capacity 270 gallons a minute: head to 3200 feet level, 200 feet.

One pump, 25 and 38 inches by 10 by 36 inches, condensor 10 by 12 by 18 inches: capacity 750 gallons a minute: head to surface 680 feet.

### SPRINGHILL, No. 5 MINE.

#### *Surface.*

One direct-acting engine, 30 by 48 inches, drum 7 feet diameter, 5 feet face: 6000 feet of 1¼-inch rope.

One patent blow and exhaust fan, diameter 18 feet, 4 feet 6 inches wide, capacity 150,000 cubic feet of air a minute. 7-inch w. g. at 170 revolutions.

Two boilers, 67 by 18 inches. 150 h. p.

## JOGGINS MINE.

*Surface.*

Four boilers, 75 h. p.

One haulage engine, 18 by 36 inches.

One man-engine, 10 by 12 inches.

Air compressor, 22 by 24 inches steam; 14 by 24 inches air high pressure; 22 by 24 inches, air low pressure, 1200 cubic feet, free air a minute.

Bankhead motor, 40 h. p.

Auxiliary engine, 10 by 11½ inches.

Machine-shop engine, 10 by 10 inches.

Fan-engine, 10 by 12 inches.

Fire-pump, duplex, 7 by 4 by 10 inches.

Boiler-feed pump, duplex 6 by 4 by 4 inches.

Turbine-pump, auxiliary steam, 16 by 5 by 10 inches, for water supply.

*Underground.*

One engine, 9½ by 10 inches, geared 1 in 5 to a 2 feet 6 inches bullwheel, operated by compressed air.

One engine, 6 by 8 inches, in sinking, geared 1 in 4½ to an 18-inch drum.

One 220-volt motor, driven double, reduction gear.

One 3-plunger pump, 5-inch plunger, with 12-inch stroke.

One 40-h.p. motor auxiliary operated by air.

One pump, 18 by 36 inches.

One sinking-pump, 16 by 5 by 10 inches, operated by air.

One 30-h.p. 220-volt motor-driven hoist, 20-inch drum.

This mine has very little gas and Marsaut safety-lamps are used and give good satisfaction.

## CHIGNECTO MINE.

*Surface.*

One fan, 50 h. p. (electric).

One engine, 18 by 30 inches.

*Underground.*

One pump, 30 by 4 by 24 inches.

## MINUDIE MINE.

One fan, 7 feet diameter.

One pair hoisting-engines, 12 by 15 inches, geared  $4\frac{1}{2}$  to 1, 75 h. p.; drum 5 feet diameter.

One fan engine, 10 by 12 inches, 25 h. p.

One single engine, 12 by 30 inches, running sawmill.

One centre-crank engine, 8 by 12 inches, screening-plant.

Two locomotive-boilers, about 300 h. p.

Four return-tubular boilers, about 300 h. p.

*Underground.*

One pump, 18 by 7 by 24 inches, capacity 18,000 gallons an hour.

One pump, 4 by 10 by 12 inches.

## VICTORIA MINE. RIVER HEBERT.

*Surface.*

One double-hoist, 7 by 10 inches, drum 2 feet.

One locomotive-boiler, about 50 h. p.

Two vertical boilers, 48 inches by 7 feet, about 50 h. p.

*Underground.*

One pump.

One pump,  $5\frac{1}{4}$  by  $3\frac{1}{2}$  inches.

---

---

# TABLES

---

---

## COAL.

*General Statement, 1913.*

	Production	Sales	Colliery consumption including locomotives	Supplied Workmen
1st Quarter...	1,805,028½	1,591,460¼	136,886¾	32,128
2nd " ...	1,704,571¼	1,184,338¾	143,043¼	43,321½
3rd " ...	1,819,185	1,681,326	135,742	21,965
4th " ...	1,845,128½	2,021,048½	132,925½	16,703
	7,203,913¼	6,478,709½	548,597½	114,118



*Coal Sales by Counties, year ended September 30th, 1913.*

	Cape Breton	Pictou	Cumberland	Inverness	Totals
N. S. by Land.....	1,575,522 $\frac{1}{4}$	463,294	103,210 $\frac{1}{2}$	117,407 $\frac{1}{2}$	2,259,434 $\frac{1}{4}$
N. S. by Sea.....	268,679 $\frac{1}{2}$	15,277	29,115	26,537 $\frac{3}{4}$	339,609 $\frac{1}{4}$
Nova Scotia Total.....	1,844,201 $\frac{3}{4}$	478,571	132,325 $\frac{1}{2}$	143,945 $\frac{1}{4}$	2,599,043 $\frac{1}{2}$
New Brunswick.....	295,306	57,835	277,083 $\frac{1}{2}$	16,417 $\frac{1}{2}$	646,642
Newfoundland .....	210,544 $\frac{1}{2}$	.....	.....	.....	210,544 $\frac{1}{2}$
Prince Edward Island.....	41,195	40,610	.....	14,277 $\frac{1}{2}$	96,082 $\frac{1}{2}$
Quebec .....	2,071,515 $\frac{1}{4}$	19,348	38,446	63,919	2,193,228 $\frac{1}{4}$
Ontario .....	.....	.....	29	.....	29
United States .....	407,604	.....	56,610	3,876 $\frac{3}{4}$	468,090 $\frac{3}{4}$
St. Pierre .....	6,650 $\frac{1}{2}$	.....	.....	.....	6,650 $\frac{1}{2}$
Other Countries.....	2,830	.....	.....	.....	2,830
Bunker .....	223,454	1,662	2,817	6,244	234,177
Time Chartered Boats.....	15,568	.....	2,086	3,737 $\frac{1}{2}$	21,391 $\frac{1}{2}$
	5,118,869	598,026	509,397	252,417 $\frac{1}{2}$	6,478,709 $\frac{1}{2}$

*Production of Coal by Counties.*

COUNTIES	1908	1909	1910	1911	1912	1913
Cumberland .....	559,013½	542,040	278,862	411,695	632,809	621,864
Pictou .....	776,857	677,637	630,049	727,944	682,883	703,583
Inverness .....	402,654½	362,516	364,104	332,779	289,706½	284,274¼
Cape Breton .....	4,556,446	3,634,392	4,205,131	4,736,026	5,197,601	5,594,192
Colchester .....	3,951	1,330	.....	.....	.....	.....
Tons .....	6,299,282	5,217,915	5,477,146	6,208,444	6,802,997¼	7,203,913¼

## MINES REPORT.

v

*Production and Sales of Coal by Companies for fiscal year ended September 30th, 1912.*

NAME OF COMPANY	Output Tons	Sales Tons	Colliery Consumption	Supplied Workmen	On Bank at Year Tons	Difference on Bank compared with 1912	
						Inc.	Dec.
Dominion Coal Co., Ltd.....	4,719,614	4,306,301	293,498	51,591	70,629	2304	.....
Nova Scotia Steel & Coal Co., Ltd. ....	811,434	756,556	32,007	19,656	28,109 <sup>3</sup> / <sub>4</sub>	3215	.....
Cumberland Railway & Coal Co., Ltd....	391,932	323,091	61,775	11,012	2,288	.....	3946
Acadia Coal Co.....	509,376	441,496	64,678	12,297	1,700	.....	9095
Maritime Coal, Railway & Power Co., Ltd.	163,891	133,165	27,173	3,553	.....	.....	.....
Inverness Railway & Coal Co.....	284,274 <sup>1</sup> / <sub>4</sub>	250,522 <sup>1</sup> / <sub>2</sub>	26,552 <sup>1</sup> / <sub>2</sub>	6,795	1,185 <sup>3</sup> / <sub>4</sub>	.....	333
Intercolonial Coal Mining Co.....	194,207	156,531	31,487	6,502	765	.....	313
Sydney Coal Co.....	5,437	5,219	94	138	8	.....	14
Colonial Mining Co.....	57,707	52,680	4,502	1,061	.....	.....	.....
Minudie Coal Co.....	63,327	50,658	6,727	1,413	.....	.....	.....
Atlantic Grindstone & Coal Co.....	2,714	2,490	104	70	50	50	.....
	7,203,913 <sup>1</sup> / <sub>4</sub>	6,478,709 <sup>1</sup> / <sub>2</sub>	548,597	114,118	104,735 <sup>1</sup> / <sub>2</sub>	5569	13701

## MINES REPORT.

*Number and Classes of Workmen employed at the Coal Mines in Nova Scotia, year ended Sept. 30, 1913.*

COMPANY	UNDERGROUND				SURFACE				CONSTRUCTION				TOTALS		HORSES		Pit Days
	Skilled Workmen	Laborers	Boys	Days	Skilled Workmen	Laborers	Boys	Days	Skilled Workmen	Laborers	Boys	Days	Persons	Days	Above	Below	
Dominion Coal Co.....	3209	1969	245	1630458	578	383	68	419164	.....	.....	.....	.....	6452	2049622	83	499	300
Nova Scotia Steel & Coal Co.....	1148	950	193	594326	157	259	23	127720	.....	.....	.....	.....	2730	722046	5	90	289
Cumberland Railway & Coal Co.....	442	302	47	230494	79	104	16	58673	13	8	1	6278	1012	295445	14	45	294
Acadia Coal Co.....	410	379	69	268726	96	248	17	129833	.....	.....	.....	.....	1219	398559	25	53	285
Intercolonial Coal Co.....	370	116	55	141386	94	106	17	61062	1	1	.....	210	760	202658	15	29	275
Joggins.....	290	71	4	114342	25	37	8	21765	.....	.....	.....	.....	435	136107	5	11	298
Chignecto.....	50	7	3	5980	4	7	3	1810	.....	.....	.....	.....	74	7790	1	1	139
Inverness Railway & Coal Co.....	311	145	26	140811	50	78	14	41952	.....	.....	.....	.....	24	182763	7	35	294
Sydney Coal Co.....	8	4	.....	2691	2	1	.....	908	.....	.....	.....	.....	15	3599	1	2	269
Minudie Coal Co.....	102	24	14	39506	24	19	8	15245	4	.....	.....	904	195	55655	3	3	300
Colonial Coal Co.....	71	25	1	22639	18	19	..	8139	4	.....	.....	908	138	31686	1	6	253
Atlantic Grindstone & Coal Co.....	7	.....	.....	1904	1	2	.....	638	.....	.....	.....	.....	10	2542	.....	.....	273
Totals..	6418	3992	657	3193263	1128	1263	174	£85949	22	9	1	8300	13664	4088472	160	774	

## COAL.

## NOVA SCOTIA EXPORTED TO THE UNITED STATES :

Years.	Tons	Duty.	Years.	Tons	Duty
1850	118,173	24 ad.	1879	51,641	.75
1851	116,274	"	1880	123,423	"
1852	87,542	"	1881	113,728	"
1853	120,764	"	1882	99,302	"
1854	139,125	Free	1883	102,755	"
1855	103,222	"	1884	64,515	"
1856	126,152	"	1885	34,483	"
1857	123,335	"	1886	66,003	"
1858	186,743	"	1887	73,892	"
1859	122,720	"	1888	30,198	"
1860	149,289	"	1889	29,987	"
1861	204,457	"	1890	50,854	"
1862	192,612	"	1891	25,431	"
1863	282,775	"	1892	13,883	"
1864	347,594	"	1893	16,099	"
1865	465,194	"	*1894	79,837	.40
1866	404,252	"	†1895	73,097	"
1867	338,492	\$1.25	‡1896	174,919	"
1868	228,132	"	1897	106,279	.67
1869	257,485	"	1898	98,927	"
1870	168,180	"	1899	153,188	"
1871	165,431	"	1900	624,273	"
1872	154,092	.75	1901	591,086	"
1873	254,760	"	1902	751,382	"
1874	138,336	"	1903	968,832	"
1875	89,746	"	1904	713,170	"
1876	71,634	"	1905	652,538	"
1877	118,216	"	1906	769,775	"
1878	88,495	"	1907	616,312	"
			1908	499,634	"
			1909	324,786½	"
			1910	290,668	"
			1911	332,301	"
			1912	412,531	"
			1913	468,000	"

*Note*—The quantities given for the years 1852 to 1872 are on the authority of the Board of Trade, Philadelphia, and are probably underestimated.

\*Nine months only.

†*Note*—After August 1st, 1894, duty on Round Coal, 40 cents, on Culm and Slack, 15 cents.

‡Fiscal year begins Oct. 1st, and ends Sept. 30th. [Chap. 4, Acts 1893].

||On July 24th, 1897, the duty was made 67 cents.

On October 3rd, 1913, duty was removed.

## [NOVA SCOTIA COAL SALES 1785 TO 1913 INCLUSIVE].

Year.	Sales	Total	Year	Sales	Total	
1785	1,668	14,349	1851	152,499	Forward, 2,741,948	
1786	2,000		1852	188,076		
1787	10,681		1853	217,416		
1788			1854	234,812		
1789			1855	238,215		
1790			1856	253,492		
1791			2,670	1857		294,198
1792	2,143		1858	226,725		
1793	1,926		1859	270,293		
1794	4,405		1860	322,593		
1795	5,320	51,048	1861	326,426	2,099,319	
1796	5,249		1862	395,637		
1797	6,039		1863	429,351		
1798	5,948		1864	576,935		
1799	8,947		1865	635,186		
1800	8,400		1866	558,523		
1801	5,755		1867	471,185		
1802	7,769		1868	453,624		
1803	6,601		1869	511,795		
1804	5,976		1870	568,277		
1805	10,130	70,452	1871	596,418	4,927,339	
1806	4,938		1872	785,914		
1807	5,119		1873	118,106		
1808	6,616		1874	749,127		
1809	8,919		1875	706,795		
1810	8,609		1876	634,200		
1811	8,516		1877	697,666		
1812	9,570		1878	693,511		
1813	9,744		1879	688,628		
1814	9,866		1880	954,659		
1815	9,336	91,527	1881	1,035,014	7,317,430	
1816	8,619		1882	1,250,176		
1817	6,284		1883	1,297,523		
1818	7,920		1884	1,261,650		
1819	8,692		1885	1,254,510		
1820	9,930		1886	1,373,666		
1821	11,308		1887	1,519,684		
1822	7,512		1888	1,576,692		
1823	27,000		1889	1,555,107		
1824			1890	1,786,111		
1825		1891	1,849,945			
1826		600	1892	1,752,934		
1827		2,149	*1893	1,485,914		
1828	20,967	140,820	†1894	2,019,742		
1829	21,935		1895	1,831,357		
1830	27,269		1896	2,047,133		
1831	37,170		1897	2,013,421		
1832	50,362		1898	2,135,397		
1833	64,743		1899	2,419,137		
1834	50,813		1900	2,997,546		
1835	56,434		839,954	1901	3,119,335	20,552,529
1836	107,593			1902	3,898,626	
1837	118,942			1903	4,621,074	
1838	106,730	1904		4,544,609		
1839	145,962	1905		4,475,284		
1840	101,198	1906		5,194,590		
1841	148,298	1907		5,046,690		
1842	129,708	1908		5,485,583		
1843	105,161	1909		4,615,713		
1844	108,482	1910		4,896,896		
1845	150,674	533,798	1911	5,556,464	45,899,400	
1846	146,506		1912	6,177,615½		
1847	201,650		1913	6,478,709		
1848	187,643					
1849	174,592					
1850	180,084					

## SUMMARY :

1785 to 1790.....	14,349	1841 to 1850.....	1,533,798
1792 to 1800.....	51,048	1851 to 1860.....	2,399,319
1801 to 1810.....	70,452	1861 to 1870.....	4,927,339
1811 to 1820.....	91,527	1871 to 1880.....	7,317,430
1821 to 1830.....	140,820	1881 to 1890.....	13,910,136
1831 to 1840.....	839,954	1891 to 1800.....	20,552,526
		1901 to 1910.....	45,899,400

\*Nine months only. †Fiscal year begins Oct. 1st and ends Sept. 30th. [Chap. 4, Acts, 1893].

**GOLD** — *General Annual Statement*

Year	Material Crushed	Total Gold Extracted		
		Oz.	Dwt.	Gr.
1862	6473	7275	0	0
1863	17002	14001	14	17
1864	24434	20032	18	13
1865	24423	25454	4	8
1866	32162	25204	13	2
1867	31386	27314	11	11
1868	32262	20541	6	10
1869	35147	17868	0	19
1870	30829	19866	5	5
1871	30791	19227	7	4
1872	17093	13094	17	6
1873	17708	11852	7	19
1874	13844	9140	13	9
1875	14810	11208	14	19
1876	15490	12038	13	18
1877	17369	16882	6	1
1878	17990	12577	1	22
1879	15936	13801	8	10
1880	14037	13234	0	4
1881	15556	10756	3	2
1882	12081	14107	13	20
1883	25954	15446	9	23
1884	25147	16059	8	17
1885	28890	22202	12	20
1886	29010	23362	15	13
1887	22280	21211	7	18
1888	36178	22407	13	10
1889	39160	26155	6	13
1890	42749	24358	9	9
1891	35212	23391	0	0
1892	33633	21080	3	18
*1893	28040	14030	5	7
1894	39333	14980	7	13
1895	58082	22112	7	21
1896	65873	25596	14	6
1897	76559	26579	19	21
1898	86331	31104	17	0
1899	104122	27772	12	3
1900	65744	30399	4	14
1901	87992	30537	14	0
1902	192076	28279	5	13
1903	92645	25198	4	18
1904	62616	14279	8	14
**1905	72252	16782	11	5
**1906	65278	14079	13	23
**1907	66060	15007	5	8
**1908	59797	11991	0	0
1909	59058	12597	12	13
**1910	49558	10675	13	16
**1911	18319	8389	12	4
1912	15868	4948	19	20
1913	7324	2364	12	22
2,124,963		938,864	3	1

\*Nine months only.

\*\*Including Gold from Stibnite ore shipped from West Gore.

## PRODUCTION OF GOLD FROM 1862 TO 1913.

DISTRICT	Tons Crushed	TOTAL YIELD OF GOLD			AVERAGE YIELD GOLD			Value at \$19 per Oz.
		Oz.	Dwt.	Grs.	Oz.	Dwt.	Grs.	
*Caribou and Moose River .....	221039	60741	8	12	.....	5	12	\$ 1154087
Montagu .....	29622	42191	19	9	1	8	12	801647
Oldham .....	58990	67505	8	22	1	2	21	1282604
Renfrew .....	61795	48699	7	19	.....	15	18	925288
Sherbrooke .....	300213	153090	1	4	.....	10	5	2908711
Stormont .....	525257	120558	4	13	.....	4	14	2290606
Tangier .....	67012	28908	11	9	.....	8	15	549263
†Uniacke .....	63351	43983	1	17	.....	13	21	835679
Waverley .....	155520	69980	10	16	.....	9	0	1329630
Brookfield .....	93527	38709	2	2	.....	8	7	735473
‡Solomon River .....	118819	41852	5	20	.....	7	1	795193
× Whiteburn .....	6907	9800	0	2	1	8	9	186200
Lake Catcha .....	30822	27822	0	18	.....	18	1	528619
†Rawdon .....	12189	9606	5	10	.....	15	18	182519
Wine Harbor .....	77396	34992	15	11	.....	9	1	664863
**Fifteen Mile Stream .....	36878	17363	0	5	.....	9	10	329897
Malaga Barrens .....	22926	20305	12	6	.....	17	17	385807
§West Gore (from Stibnite Ore) .....	3240	4512	15	10	1	7	20	85743
Other districts .....	144935	75367	2	22	.....	10	9	1431975
Total .....	2030438	915989	14	11		9	0	\$17403804

\*From 1869. †From 1868. ‡From 1883. ||From 1887. ×From 1882. †From 1887. \*\*From 1883. §From 1905.



## GENERAL GOLD STATEMENT—Year ended September 30th, 1913.

District	Tons Crushed	TOTAL YIELD OF GOLD		AVERAGE YIELD OF GOLD	
		Oz.	Dwt.	Oz.	Gr.
Beaver Dam .....	12	3	5	.....	10
Caribou .....	687	459	5	.....	9
Caribou (Moose River) .....	325	86	0	.....	7
Cow Bay.....	4	2	0	.....	0
Fifteen Mile Brook .....	783	304	18	.....	19
Lake Catcha.....	1185	353	10	.....	23
Miller's Lake .....	15	6	15	.....	0
Montagu .....	99	18	16	.....	19
Oldham .....	255	162	6	.....	18
Pleasant River Barrens.....	.....	7	17	.....	.....
Renfrew .....	476	190	19	.....	1
Stormont.....	20	8	6	.....	7
Shier's Point.....	563	82	19	.....	23
Tanguier .....	2900	577	15	.....	16
Total.....	7324	2364	12	.....	11

MONTHLY STATEMENT FOR EACH GOLD DISTRICT—(Continued)

MONTH	CARIBOU				CARIBOU (MOOSE RIVER)			
	No. of Mines	Tons Crushed	YIELD OF GOLD		No. of Mines	Tons Crushed	YIELD OF GOLD	
			Oz.	Dwt.			Oz.	Dwt.
1912								
October...	1	40	17	13	1	60	33	0
November .....	1	51	43	16	1	90	15	10
December . . . . .	1	70	62	8		No	Crushing	0
1913								
January.....	1	97	81	3		No	Crushing	0
February .....	1	53	46	12		No	Crushing	0
March .....	1	57	26	12		No	Crushing	0
April.....		No	Crushing		1	60	6	10
May.....	1	97	64	12	3	18	18	0
June .....		No	Crushing			No	Crushing	0
July .....	1	89	61	16	1	85	9	0
August .....	1	72	34	10		No	Clean up	0
September.....	1	61	20	3	1	12	4	0
Total.....		687	459	5		325	86	0

## MONTHLY STATEMENT FOR EACH GOLD DISTRICT—(Continued)

MONTH	MONTAGU					FIFTEEN MILE BROOK				
	No. of Mines	Tons Crushed	YIELD OF GOLD			No. of Mines	Tons Crushed	YIELD OF GOLD		
			Oz.	Dwt.	Gr.			Oz.	Dwt.	Gr.
1912										
October.....		No Crushing				1	150	80	0	0
November.....	1	40	9	5	15		No	Clean up		
December.....		No Crushing					No	Crushing		
1913										
January.....		No Crushing				1	192	59	7	14
February.....		"					No	Clean up		
March.....		"					"	"		
April.....		"					"	"		
May.....		"					"	"		
June.....		"					"	"		
July.....	2	5	3	3	12	1	155	82	7	4
August.....		No Crushing				1	180	43	14	14
September.....	1	54	6	7	0	1	56	29	8	19
						1	50	10	0	0
Total.....		99	18	16	3		783	304	18	3



## MONTHLY STATEMENT FOR EACH GOLD DISTRICT—(Continued)

MONTH	LAKE CATCHA				OLDHAM			
	No. of Mines	Tons Crushed	YIELD OF GOLD		No. of Mines	Tons Crushed	YIELD OF GOLD	
			Oz.	Dwt.			Oz.	Dwt.
1912								
October.....	1	174	40	7			No Crushing	
November .....	1	276	36	13			No Crushing	
December .....	1	117	14	1	2	7	2	12
1913								
January....		No	Crushing			No	Crushing	
February .....		No	Crushing			No	Crushing	
March.....		No	Crushing			No	Crushing	
April .....		No	Crushing		2	10	7	10
May.....	1	175	25	0		No	Crushing	
June.....	1	196	27	17	3	59	36	0
July.....	1	127	102	8	5	86	45	0
August.....	1	67	20	3	1	35	30	10
September.....	1	53	87	0	2	58	40	2
Total. ....		1185	353	10		255	102	6

MONTHLY STATEMENT FOR EACH GOLD DISTRICT.—(Continued)

OTHER DISTRICTS.											
MONTH	No. of Mines	Tons	YIELD OF GOLD			DISTRICTS	No. of Mines	Tons Crushed	YIELD OF GOLD		
			oz.	dwt.	grs.				oz.	dwt.	grs.
1912											
October.....	2	158	62	16	0	Beaver Dam.....	1	12	3	5	0
November.....	2	30	19	4	0	Cow Bay .....	1	4	2	0	0
December.....	2	19	8	15	0	Miller's Lake .....	1	15	6	15	0
1913											
January .....	No	Crushing				*Pleasant River Barrens.	1		7	17	0
February.....	No	Crushing				Stormont.....	1	20	8	6	0
March.....	1	234	12	7	0	Shier's Point .....	1	563	82	19	0
April.....	1	173	8	0	0						
May.....	No	Crushing									
June.....	"	"									
July .....	"	"									
August.....	"	"									
September.....	"	"									
Totals.....	614	111	2	0		Totals.....	614	111	2	0	

\* Silver 2 oz., 1 dwt.













